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2. Organization as author

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4. Article not in English

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5. Volume with supplement

Shen HM, Zhang QF. Risk assessment of nickel carcinogenicity and occupational lung cancer. Environ Health Perspect 1994;102 Suppl 1:275-82.

6. Issue with supplement

Payne DK, Sullivan MD, Massie MJ. Women's psychological reactions to breast cancer. Semin Oncol 1996; 23(1 Suppl 2):89-97.

7. Volume with part

Ozben T, Nacitarhan S, Tuncer N. Plasma and urine sialic acid in non-insulin dependent diabetes mellitus. Ann Clin Biochem 1995;32(Pt 3):303-6.

8. Issue with part

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9. Issue with no volume

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1995;(320):110-4.

10. No issue or volume

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Fisher GA, Sikic BI. Drug resistance in clinical oncology and hematology. Introduction. Hematol Oncol Clin North Am 1995 Apr;9(2):xi-xii.

12. Type of article indicated as needed

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Clement J, De Bock R. Hematological complications of hantavirus nephro-pathy (HVN) [abstract]. Kidney Int 1992;42:1285.

13. Article containing retraction

Garey CE, Schwarzman AL, Rise ML, Seyfried TN. Ceruloplasmin gene defect associated with epilepsy in EL mice [retraction of Garey CE, Schwarzman AL, Rise ML, Seyfried TN. In: Nat Genet 1994;6:426-31]. Nat Genet 1995;11:104.

14. Article retracted

Liou GI, Wang M, Matragoon S. Precocious IRBP gene expression during mouse development [retracted in Invest Ophthalmol Vis Sci 1994; 35:3127]. Invest Ophthalmol Vis Sci 1994;35:1083-8.

15. Article with published erratum

Hamlin JA, Kahn AM. Herniography in symptomatic patients following inguinal hernia repair [published erratum appears in West J Med 1995;162:278]. West J Med 1995;162: 28-31. Books and Other Monographs

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17. Editor(s), compiler(s) as author

Norman IJ, Redfern SJ, editors. Mental health care for elderly people. New York: Churchill Livingstone; 1996.

18. Organization as author and publisher

Institute of Medicine (US). Looking at the future of the Medicaid program. Washington: The Institute; 1992.

19. Chapter in a book

Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: Pathophysiology, diagnosis, and management. 2nd ed. New York: Raven Press; 1995. p. 465-78.

20. Conference proceedings

Kimura J, Shibasaki H, editors. Recent advances in clinical neuro-physiology. Proceedings of the 10th International Congress of EMG and Clinical Neurophysiology; 1995 Oct 15-19; Kyoto, Japan. Amsterdam: Elsevier; 1996.

21. Conference paper

Bengtsson S, Solheim BG. Enforce-ment of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Infor-matics; 1992 Sep 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992. p. 1561-5

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Editorial
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Overuse of Internet and its Health Effects with Its Remedy: Bangladesh Perspective

Alam MJ

Internet has become an integral part of our day to day life. Now a days, people are gradually becoming dependent on it. It has made the life a lot easier by making information more accessible to all and creating connections with different people around the world. Computer has become the center of their lives. It is being used for news, information research, communication and relationships. Out of total population of the world, nearly 03 billion people are using almost half of the world's population. It is estimated that 5.0 to 10.0% of the internet users are addicted and 30.0% of them consider the internet as important as food, water and shelter[1].

Advantages of the Internet[2]: The internet is probably one of the greatest inventions so far. The accessibility of the internet has opened the world to people by stripping away geographical barriers and sharing information instantaneously. Faster communication can be obtained through the internet. Families and friends can keep in touch easily. The platform for products like SKYPE allows for holding a video conference with anyone in the world who also has access. People can find information on almost any imaginable subject. Tons of resources can be found through the search engine in minutes. Inexhaustible education like students can gain readily available help for their homework online. People can teach and learn in a worldwide classroom nowadays. Considering the entertainment for everyone, most of us love using our laptops, smartphones and tab. The internet is the big reason behind us spending so much time on these gadgets. The internet provides the services of emails, online banking, online shopping and so one. Free mail service to anyone is easily accessible all around the world. E-commerce enables one in America to buy things in Asia, Africa, or other areas in the world through some simple clicks of the mouse.

Health Effects

a) Physical Health Effects: The light from screen results in eye strain, dry eyes requiring glasses, headache, migraine, carpel tunnel syndrome, bad postures, especially among children, resulting in musculoskeletal disorders, sedentary life style and weight gain or loss.

b) Mental Health Effects: These results in emotional symptoms or mood disorder like depression, destruction of real relationship. Depression has also been linked to internet overuse by researchers at the Institute of Psychological Sciences in Leeds, UK[3]. Internet overuse can also contribute to sleep disturbance such as later bed times, later working times, less restful sleep and overall decrease in sleep.

c) Social Health Effects: These are cyber bullying[4] and internet addiction. Cyber bullying includes sending hateful or harassing messages or even death threats, spreading lies through online, making nasty a website to bash their looks or reputation. Internet addiction disorder (IAD) also known as problematic internet use or pathological internetuse is generally defined as problematic, compulsive use of the internet that results in significant impairment in an individual's function in various life domains over a prolonged period of time. The internet can foster various addictions including addiction to pornography, game-playing, auction sites, social networking sites, and surfing of the Web[5]. As adolescents (12 to 19 years) and emerging adults (20 to 29 years) access the internet more than any other age groups and undertake a higher risk of overuse of the internet, the problem of internet addiction disorder is most relevant to young people[6]. Internet addiction has become a global problem.

Medication: These addictions may be triggered by underlying emotional disorders such as depression and anxiety, so medications used for those conditions can be given in the hope that treating the underlying cause will cause a cessation of the internet or computer addiction. These medications are antidepressants and anti-anxiety drugs[7].

Psychosocial Treatment

Cognitive Behavioral Therapy: Several key aspects are embedded in this therapy[8-9].

- Learning time management strategies
- Recognizing the benefits and potential harms of the internet
- Increasing self-awareness and awareness of others and one's surroundings

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• Identifying "triggers" of internet "binge behavior", such as particular Internet applications, emotional states, maladaptive cognitions, and life events
• Learning to manage emotions and control impulses related to accessing the Internet, such as muscles or breathing relaxation training
• Improving interpersonal communication and interaction skills
• Improving coping styles
• Cultivating interests in alternative activities

Motivational Interviewing: The motivational interviewing approach is developed based on therapies for alcohol abusers[9-10]. This therapy is a directive, patient-centered counseling style for eliciting behavior change through helping patients explore and resolve ambivalence with a respectful therapeutic manner. It does not, however, provide patients with solutions or problem solving until patients' decision to change behaviors[8]. Several key elements are embedded in this therapy[10] like asking open-ended questions, giving affirmations, reflective listening. Other psychosocial treatment therapies include reality therapy, Naikan cognitive psychotherapy, group therapy, family therapy, and multimodal psychotherapy[8].

With advancement of technology, people of Bangladesh are largely using internet facilities. Students are facing the problems of mental exhaustion and eye problems with gradual increase in the use of spectacles. Guardians are very much anxious for this situation. To combat the situation, massive community involvement is necessary to increase awareness about the harmful effects of overuse of internet.

[Journal of Monno Medical College, December 2019;5(2): 25-26]

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Original Article

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Knowledge about Snake Bite among Rural People in a Selected Area of Bangladesh

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Abstract

Background: Snake bite is a very common incidence among the rural people. **Objective:** This study was conducted with a view to finding out the knowledge of the rural people regarding snake bite and its management. **Methodology:** This was a descriptive type of cross-sectional study which was conducted among the rural people aged 18 to 50 years in four different villages of Raigonj upazila, Sirajganj district of Bangladesh under the Department of Community Medicine, Monno Medical College, Manikgonj, Bangladesh during the period of January to June, 2019. **Results:** The study revealed that out of 232 respondents' majority belonged to the age group (20 to 30) years which was 150(65.0%) cases. Most of the respondents completed below SSC level which was 164(71.0%) cases and monthly family income of most of the respondents 120(52.0%) was taka (5000 to 10000). About three fifth of the respondents 140(60.0%) knew that two punctured wound is the evidence of venomous snake bite. Majority thought that farmers were the high risk group of snake bite which was 124(53.0%) cases and most of the respondents 184(80.0%) were in favor of application of tourniquet above the biting site. More than half of the respondents 135(58.0%) thought that snake bite occurred in lower limb followed by upper limb 65(28.0%). Majority of the respondents 164(71.0%) preferred hospital treatment as an ideal, followed by traditional Ozha 40(17.0%). **Conclusion:** Rural people still have a lack of proper knowledge about identification of venomous snake first aid and treatment of snake bite. *[J Monno Med Coll December 2019;5(2):27-30]*

Keywords: Snake bite; rural people; Sirajganj; Bangladesh.

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Introduction

Snake bite is an important public health problem and a major cause of mortality and morbidity in rural area of Bangladesh. The true incidence of snake bite in Bangladesh is unknown. During 1988-89 a small survey was conducted in 50 Upazilla that recorded 746 episode of snake bite of which 168 (22%) died[1]. Most of the cases the victims of snake bite are poor, young and active individuals. Globally it is estimated that 2.5 million bites are envenoming resulting 125000 deaths[2]. Majority of the snake are non-venomous. The venomous snake are usually bright in color and have a triangular head compared to non-venomous snake with round head. Symptoms of snake bite are two puncture wound, bleeding, severe pain at the area[3-4]. A common sign of a bite from a venomous snake is the presence of two puncture wounds from the animals' fangs[2]. Most of the bite are on the hands, arms or legs[4,5]. Trying to suck out the venom, cutting the wound with a knife, or using a tourniquet is not recommended in the snake bite treatment[3].

Globally there are 2900 snakes' species of which about 600 are considered venomous[6]. Most deaths and serious consequence from snake bite are entirely preventable by making safe and effective anti-venomous more widely available and accessible[7]. In Bangladesh snake bite is a terrifying acute medical emergency in rural area in particular. Estimate is 4.3 bites per 100000 population with 2000 deaths

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per year following snake bite. This is known to be health hazards for the country which is under per-view of traditional healer 'Ohzas' who use to demonstrate a number of rituals for providing treatment which have been found to be useless at times harmful[8]. The main purpose of the study was to find out the knowledge of the rural people regarding snake bite and its management.

Methodology

This was a descriptive type of cross-sectional study which was conducted among the rural people aged 18 to 50 years in four different villages named as Moddhopara Vormohoni, Chowdhury Ghughat, Bowlatola, Jhaul under Dhubil union of Raigonj Upazilla of Sirajganj district of Bangladesh under the Department of Community Medicine at Monno Medical College, Manikgonj, Bangladesh during the period of 1st January to 30th June, 2019. The ethical clearance was approved by ethics review committee of Monno Medical College. Sampling technique was convenient sampling technique. The participants were included in the study on the basis of some inclusion criteria which were age between 18 to 50 years, both male and female adults and who provided informed written consent. Psychologically abnormal person and seriously ill patients were excluded. The data were collected through face to face interview by pre-tested semi-structured questionnaire. The questionnaire was designed to find out the socio- demographic characteristics of the respondents, knowledge of the people on some common sign-symptoms of venomous snake bite, opinion of the respondents on high risk group for snake bite, knowledge of the people regarding first aid for snake bite, opinion of the respondents on site of snake bite, opinion of the people regarding treatment of snake bite. Data thus collected were checked and verified for any omission or in consistency. Finally data were analyzed by SPSS version 23 to find out necessary frequencies and percentages.

Results

A total number of 232 people were recruited for this study. Majority 150(65.0%) of the respondents belonged to the 18 to 30 years of age group; most of the respondents were male which was 124(53.4%) respondents and majority completed below SSC level of education which was 164(71.0%) cases. Most of the respondents were agricultural workers which was 56(67.0%) cases and monthly family income of most of the respondents was 5000 to 10000 taka which was in 120(52.0%) cases (Table 1).

In this study it was revealed that 180(78.0%) respondents knew about pain at biting site; 140(60.0%) respondents knew about two punctured wound; 190(90.0%) respondents knew about bleeding; 130(86.0%) respondents knew about difficulty in breathing and 164(58.0%) respondents knew about blurring of vision as evidences of venomous snake bite (Table 2).

The study showed that 124(53.0%) respondents were farmers, 44(19.0%) respondents were fishermen and 40(17.0%) respondents were kacha house dwellers and all those were the high risk group for snake bite (Table 3).

Table 1: Socio-Demographic Characteristics of the Respondents (n=232)

Socio-demographic Characteristics	Frequency	Percentage
Age Group		
18 to 30 Years	150	65.0
31 to 50 Years	82	35.0
Gender		
Male	124	53.4
Female	108	46.6
Education		
Below SSC	164	71.0
SSC	56	24.0
HSC & above	12	05.0
Occupation		
Agricultural worker	56	67.0
Business	44	19.0
Service	14	16.0
Others	18	08.0
Family Income		
<5000 Taka	92	40.0
5000-10000 taka	120	52.0
> 10000 taka	20	08.0

Table 2: Knowledge of the People on Some Common Sign-Symptoms of Venomous Snake Bite (n=232)

Status	Frequency	Percentage
Pain at the biting site	180	78.0
Two puncture wound	140	60.0
Bleeding	190	90.0
Difficulty in breathing	130	86.0
Blurring of vision	164	58.0
Nausea & vomiting	132	52.0

Multiple response analysis

Table 3: Opinion of the Respondents on High Risk Group for Snake Bite (n=232)

Status	Frequency	Percentage
Farmer	124	53.0
Fisherman	44	19.0
Kacha house dwellers	40	17.0
Others	24	11.0
Total	**232**	**100.0**

In this study it was found that 184(80.0%) respondents were in favor of application of tourniquet above the biting site; 24(10.0%) respondents were in cutting of biting area; 12(5.0%) respondents were in sucking venom from injury site (Table 4).

The study revealed that majority thought that snake bite occurred in lower limb which was 135(58.0%) respondents followed by upper limb, head and in other sites which was 65(28.0%) respondents, 11(4.74%) respondents and 12(5.17%) respondents respectively (Table 5).

Table 4: Knowledge of the People Regarding First Aid for Snake Bite (n=232)

Status	Frequency	Percentage
Application of tourniquet above biting site	184	80.0
Cutting of biting area	24	10.0
Sucking venom from injury site	12	05.0
Others	12	05.0

Multiple response analysis

Table 5: Opinion of the Respondents on Site of Snake Bite (n=232)

Biting site	Frequency	Percentage
Upper limb	65	28.0
Lower limb	135	58.0
Chest	9	3.87
Head	11	4.74
Other site	12	5.17
Total	**232**	**100.0**

In this study it was reflected that 164(71.0%) respondents preferred hospital treatment followed by only 40(17.0%) respondents by traditional healers' treatment by Ozha (Table 6).

Table 6: Opinion of the People Regarding Treatment of Snake Bite (n=232)

Status	Frequency	Percentage
Treatment by doctor/hospital	164	71.0
Treatment by Ozha	40	17.0
Treatment by snake charmer	20	9.0
Others	8	3.0
Total	**232**	**100**

Discussion

This cross-sectional study has been conducted among 232 rural people aged (18 to 50) years in four different villages of Raiganj Upazila of Sirajganj with a view to finding out the perception of rural people regarding snake bite. In the present study majority (65.0%) of the respondents belong to the age group18 to 30 years, most of the respondents (53.4%) are male and majority (71.0%) complete below SSC level. Most of the respondents (67.0%) are agricultural workers and monthly family income of most of the respondents (52.0%) is taka 5000 to 10000.

In this study majority (78.0%) of the respondents have told about pain at the site of bite as sign of venomous snake bite followed by two punctured wound (60.0%) and blurring of vision (58.0%). A similar study that has been conducted by Helsha et al[9] shows that 67.7% respondents have told about two punctured wound bite as a sign of venomous snake. This finding is consistent with the result of this study.

Regarding opinion of the people about high risk group for snake bite, more than half of the people (53.0%) think that farmers are the high risk group followed by fishermen 19.0%. A study which has been conducted in Dhaka Medical College Hospital on snake bite reveals that 96.0% victims are farmers which is consistent with the result of this study[6]. In the present study application of tourniquet above the biting mark as a first aid for snake bite are 80.0% as peropinion of the respondents. A study that has been conducted by Vongphoumy et al[7] at Srilanka shows that 90.0% of the people like tying tourniquet above the biting site which is inconsistent with the result of this study. In this study people think that 28.0% snake bite occurs in upper limb and 58.0% in lower limb. A study which has been conducted in Nepal shows that snake bites occur in upper limb 64.6% which is consistent with the opinion of this study[10]. Another study which has been conducted in India reveals that bite occurs in lower limb which is inconsistent with this study[11].

Regarding treatment, 71.0% people prefer hospital treatment followed by only 17.0% by traditional healers' treatment by Ozha. A study that has been conducted in the rural people in Tirunelveli district of India shows that 62.5% people prefer hospital treatment and only 12.0 % prefer traditional treatment which is consistent with the result of this study[8]. Another study which has been conducted by Silvia et al[12] among the farmers in Srilanka reveals that 86.8% prefer hospital treatment which is also consistent with the result of this study.

This study was conducted in a small area selected conveniently. The sample size was also small.

Conclusion

The study shows that three-fifths of the respondents know that two punctured wound is the evidence of venomous snake bite. Majority think that farmers are the high risk group of snake bite and most of the respondents are in favor of application of tourniquet above the biting site. More than half of the respondents think that snake bite occur in lower limb and majority are in favor of upper limb. In this study it is found that majority of the respondents prefer hospital for treatment of snake bite. Therefore, the participants has insufficient knowledge on basic sign-symptoms of poisonous snake bite, high risk group for snake bite, first aid and treatment for snake bite. However, all the nearby Upazilla Health Complex should be made available with well-trained doctors and equipments for the snake bite as well as community based awareness programs should be developed and implemented for the rural people for this neglected public health problem.

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Original Article

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Status of Protective Immunity against Mumps Virus Infection among Non-Vaccinated Healthy Adult Population in Sylhet Region of Bangladesh

Jahan T[1], Rahman M[2], Shahid SB[3], Rabbi FI[4], Haque MM[5]

Abstract

Background: The virus remains endemic in countries where mumps vaccine has not been implemented in national immunization program. In Bangladesh mumps is not included in EPI schedule. The epidemiological studies of recent years show that there is a change in incidence of mumps in different age group. Though mumps was an early childhood illness, now a days it affects adolescents and young adults. **Objective:** The purpose of the present study was to see the status of protective immunity against mumps virus infection among non-vaccinated healthy adult population. **Methodology:** This cross-sectional study was conducted in the Department of Microbiology at MAG Osmani Medical College, Sylhet, Bangladesh during the period from January 2018 to December 2018 for a duration of one year. Healthy adult population with the age between 18 to 45 years and any gender were included. Serum IgG antibody against Mumps were measured by ELISA method following the instructions provided by manufacturer's package insert. **Result:** A total of 180 individuals were included in this study. Among them 122(67.8%) participants had protective immunity and rest of 58(32.2%) participants had no protective immunity against mumps virus. Protective immunity was higher in age group 18 to 27 years 69(72.6%) and it was declined as age increases. Protective immunity was found in all the participants (100%) with history of mumps infection and in 45(78.9%) participants with history of close contact and in 77(62.6%) participants with no history of close contact with mumps infection (P=0.029). **Conclusion:** The status of protective immunity against mumps virus infection among non-vaccinated healthy adult population is significantly high. *[J Monno Med Coll December 2019;5(2): 34-34]*

Keywords: protective immunity; antibody; mumps virus infection; Vaccine.

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Introduction

Mumps is an acute contagious viral disease caused by Mumps virus and is a type of acute respiratory infectious disease that is prevalent worldwide. Vaccination against mumps has been broadly introduced into national immunization programs (NIP) in many countries, beginning in the 1970s. By the end of 2013, the vaccine became the part of the NIP in 120 countries around the world[1]. Initially, starting in 1987, a live-attenuated bivalent vaccine against measles and mumps, or a monovalent vaccine against mumps, was used. In 1995, these vaccines were replaced by a trivalent measles, mumps and rubella vaccine. The Jeryl-Lynn mumps vaccine strain is use genotype A[2]. The vaccination schedule consists of two doses. Currently, the first dose is administered to children from the 15th month of life and the second dose is administered 6–10 months after the first dose. The vaccination coverage has been 98% cases[3]. The introduction of the mumps vaccine has dramatically reduced the number of mumps cases and re-outbreaks have recently occurred among populations in developed countries. Countries that have low immunization rates may see an increase in cases among older age groups[4].

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There is only one antigenic type of mumps virus, and it does not exhibit significant antigenic variation. Antibodies to the HN glycoprotein, the F glycoprotein, and the nucleocapsid protein (NP) develop in serum after natural infection. Antibodies to the NP protein appear earliest 3 to 7 days after the onset of clinical symptoms but are transientand are usually gone within 6 months. Antibodies to HN antigen develop more slowly 4 weeks after onset; but persist for years. Antibody against the HN antigen correlate well with immunity. Even subclinical infections are thought to generate lifelong immunity. A cell-mediated immune response also develops. Interferon is induced early in mumps infection. In immune individual IgA antibodies secreted in the naso-pharynx which exhibit neutralizing activity. Passive immunity is transferred from mother to off-spring; thus, it is rare to see mumps in infants younger than 6 months[5].

Bangladesh is one of the densely populated countries in the world and also belongs to developing countries. A pilot study from department of immunology, BIRDEM, Dhaka showed that children of 3 to 15 months had no protective antibody level against mumps. After the age of 15 months, seroprevalence started to increase. Children 5 to 15 years of age became protected 63.0% to 85.0% cases by natural infection. But remaining has no protective antibody. As the increase of age immunity to mumps is wane. These adult groups are more vulnerable to Mumps virus[6]. The use of specific vaccine leads to a significant success to control of mumps infection. The purpose of the present study was to see the status of protective immunity against mumps virus infection among non-vaccinated healthy adult population.

Methodology

This descriptive cross-sectional study was conducted in the Department of Microbiology at MAG Osmani Medical College, Sylhet, Bangladesh. This study was carried out during the period from January 2018 to December 2018 for a duration of one year. All 18 to 45 years aged healthy adult persons in Sylhet region fulfilling the enrollment criteria were selected as study population. Inclusion criteria was apparently healthy adult in the age group of 18 to 45 years and any gender and persons excluded who received Mumps vaccine, taking immunosuppressant drugs or steroid therapy and immunocompromised persons. After selection of study population who were mostly available, easily accessible and convenient to include were identified against a serial number. All the participants were thoroughly informed about their roles and the procedure of this research work. Data were collected by predesigned data collection sheet. Informed written consents were obtained from all the subjects. All information was kept confidential with due respect to the participants wish and without any force or pressure. Approval of the research protocol and ethical permission were obtained from the Ethical Review Committee of MAG Osmani Medical College, Sylhet. All the ethical committee guidelines were followed during the study period. After proper aseptic precaution 3ml of venous blood was drawn by sterile disposable 5cc syringe into a vacutainer tube and was allowed it to clot at room temperature for about 30 minutes. Serum was separated by centrifuging at 2000 rpm for 10 minutes and then 100µl of serum was transferred carefully into Eppendorf tube, properly capped, labeled and stored at 2 to 8ºC. All reagents were kept in proper temperature according to the manufacturer's instruction before use. Serum IgG antibody against Mumps were measured by ELISA method by Mumps IgG ELISA kit(CALBIOTECH A life science company, CA 92020 U.S.A. Catalog # MP060G, Lot # MPG5544) following the instructions provided by manufacturer's package insert. All steps of procedure were completed without interruption. All data were processed and analyzed with the help of SPSS (Statistical Package for Social Sciences) Version 21.0.Qualitative data were expressed as frequency and percentage. Association were analyzed by Pearson's Chi-Square test. A probability (P) value of less than 0.05 was considered statistically significant. All the test was performed based on 2-sided test.

Results

A total number of one hundred eighty healthy subjects were recruited after fulfilling the inclusion and exclusion criteria. In this study 122(67.77%) participants had protective antibody and 58(32.23%) participants had no protective antibody.

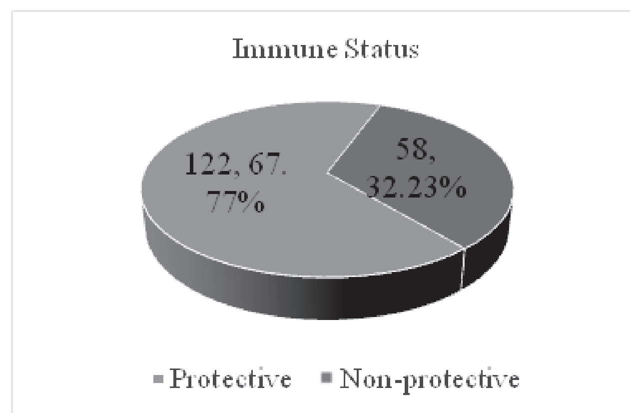

Figure I: Pie chart showing Distribution of Participants according to Protective Immunity against Mumps

Protective immunity against mumps was found in 69 (56.6%) participants of aged between 18 to 27 years; 34 (27.9%) participants of aged between 28 to 37 years and 19 (15.6%) participants of aged between 38 to 45 years. Protective immunity did not differ significantly in different age group (P=0.334) (Table 1).

In this study protective immunity against mumps was found in 9(5.0%) participants with history of mumps infection and in 171(95.0%) participants with no history of mumps infection. Among 171 cases protective immunity was found in 113(66.1%) cases. Therefore, protective immunity differed significantly with history of mumps infection (P=0.034) (Table 2).

Table 1: Protective Immunity against Mumps in Different Age Group

Age Group	Protective Immunity	No Protective Immunity	Total	P value
18 to 27 Years	69(72.6%)	26(27.4%)	95(100.0%)	
28 to 37 Years	34(63.0%)	20(37.0%)	54(100.0%)	0.034
38 to 45 Years	19(61.3%)	12(38.7%)	31(100.0%)	

Chi- Square (X2) test was performed to see the level of significance; p value=0.334

Table 2: Protective Immunityof Participants with History of Mumps Infection

H/OMumps Infection	Protective Immunity	No Protective Immunity	Total	P value
Yes	9(100.0%)	0(0.0%)	9(100.0%)	0.034
No	113(66.1%)	58(33.9%)	171(100.0%)	

Chi- Square (X2) test was performed to see the level of significance

Protective immunity against mumps was found in 45(78.9%) participants with history of close contact with mumps infection and in 77(62.6%) participants with no history of close contact with mumps infection. Protective immunity differed significantly(P=0.029) with history of close contact of mumps infection and with no history of close contact with mumps infection (Table 3).

Table 3: Protective Immunityof Participants with History of Close Contact with Mumps Infection

H/O Close Contact	Protective Immunity	No Protective Immunity	Total	P value
Yes	45(78.9%)	12(21.1%)	57(100.0%)	0.029
No	77(62.6%)	46(37.4%)	123(100.0%)	

Chi- Square test was performed to see the level of significance or association; p value=0.029

Discussion

To see the immune status of Mumps among non-vaccinated healthy adult population 180 participants have been selected according to inclusion and exclusion criteria. Among them 122(67.77%) participants have protective immunity and rest of 58(32.23%) participants has no protective immunity against mumps. Almost similar information showed by a study conducted in India in 2013, where 68% have protective immunity with the rest (32%) having no protective immunity among the participants[7].

This study showed that the protective immunity against mumps has been found in 69 (56.6%) participants from the age group 18 to 27 years; 34 (27.9%) participants from the age group 28 to 37 years and 19(15.6%) participants from the age group 38 to 45 years. Protective immunity has no statistically significant difference in different age group (P=0.334), at the same time it observed that mean serum IgG level and protective immunity were higher among younger group and waning as age increased.

A sero-prevalence study was conducted by Medical University in Bulgaria about mumps IgG antibody showed that 33% of the participants (n=136) from the age group over 30 years found as non-protective[8]. According to the national surveillance data of Japan, from 2000 to 2016 about 53.6% of mumps cases were adults[9]. In the recent past 2014, data provided by the Government of India that about 60% of subjects had mumps infection, of which 80% were adult individuals[10]. The immunity to mumps seemed to be waned with the increasing of age and that is why adult population is more prone to infection of mumps[4].

Protective immunity against mumps has been found in 9 (100%) participants with history of mumps infection and in 113(66.1%) participants with no history of mumps infection. Protective immunity differed significantly with history of mumps infection (P =0.034). Among the participants with no history of mumps infection, participants may get immunity from subclinical infection, herd immunity and some of the participants might be given improper history. Protective immunity against mumps has been found in 45(78.9%) participants with history of close contact with mumps infection and in 77(62.6%) participants with no history of close contact with mumps infection.

Protective immunity differed significantly (P=0.029) with history of close contact of mumps infection and no history of close contact with mumps infection. An observational study about outbreaks of mumps was conducted in Korea showed that mumps had occurred among secondary school student 83.0% who share a common dormitory[11]. Countries that have no vaccination program or low immunization rates, people are more vulnerable to mumps infection especially young adult age group. It is now essential to take necessary steps to do the test to detect the protective immunity of Mumps virus.

Conclusion

The status of protective immunity against mumps virus infection among non-vaccinated healthy adult population is significantly high. However this study yielded the fact that significant number of participants remains unprotected against mumps. Where large-scale immunization against mumps has been implemented, the incidence of the disease has dropped dramatically.

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Original Article

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Knowledge and Practices of Hospital Nurses Regarding the Causes, Clinical Care and Prevention of Diabetic Foot Ulcer

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Abstract

Background: Diabetes is also serious chronic disease that needs special attention. **Objective:** This study was carried out to assess the status of knowledge and practices of hospital nurses regarding the causes, clinical care and prevention of diabetic foot ulcer a hospital-based selected study. **Methodology:** The descriptive design of cross sectional study was conducted at Rajshahi Diabetic Association General Hospital, Rajshahi, Bangladesh which was located in Rajshahi Metropolitan city of Bangladesh. Nurses were taken as the sample in this study. The study was carried out from December, 2013 to April, 2014 using a pretested semi-structured questionnaire. Face to face interview technique was adopted for this purpose. **Results:** The study showed that out of 50 nurses most of the respondents were belonged to the age group between 30 to 39 years which was 21(42.0%) respondents. Among them Diploma in Nursing 88% and B.Sc. in nursing or B.Sc.in public health nursing 6.0%. About 74.0% had knowledge on diabetic foot ulcer and the same percentage of nurses perfectly management diabetic foot ulcer of patients. In this study it was found that 34(68.0%) nurses knew that Diabetes could damage the nerves of the legs and feet and 20(40.0%) nurses had knowledge of smoking, alcohol and depression as the causes. In relation to the knowledge about factors increasing the risk of foot ulcer, it was found that 70.0% nurses' knew about the reduction of sensation on the feet with poorly controlled diabetes. Regarding the types of ulcer, 84.0% and 82.0% nurses had knowledge about the deep ulcer to tendon or joint capsule and deep ulcer with abscess, osteomylitis or joint sepsis respectively. About 82.0% nurses responded that feet regularly examined and 88.0% expressed patient's education, as the preventive measures. About 78.0% nurses responded complete rest of foot; 76.0% respondents had knowledge of treatment of the infection and 68.0% nurses knew that wound care, blood sugar control, skin grafting, oxygen, antibiotic use, regular dressing as the management of the foot ulcer. **Conclusion:** Strict glycaemic control is mandatory to reduce the incidence of diabetic foot ulcer. Diabetic patients should take special care of their feet. So the attending nurses should posses adequate knowledge about diabetic foot ulcer's care and prevention. *[J Monno Med Coll December 2019;5(2): 35-38]*

Keywords: Hospital nurses; knowledge & practice; causes of diabetic foot ulcer; clinical care & prevention of diabetic foot ulcer

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Introduction

Diabetes is a heterogeneous group of disease, characterized by a state of chronic hyperglycemia, resulting from a diversity of etiologies, environmental and genetic, acting jointly. It is an 'iceberg" disease[1]. Ulceration of the foot is one of the major health problems for people with diabetes mellitus. It is estimated to affect 15.0% to 25.0% of people with diabetes at some time in their lives[2]. Foot ulceration can result in marked physical disability and reduction of quality of life[3-4], limb loss and even death[5].

Diabetic foot ulcers precede 25.0% to 90.0% of all amputations[6-7]. The risk of a lower extremity amputation in

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people with diabetes is therefore much higher than in people without diabetes[8-9]. Several factors are involved in the development of foot ulcers, including peripheral neuropathy, peripheral vascular disease, limited joint mobility and repeated trauma from abnormal load distribution on the foot[10-11]. The underlying causes of foot ulcers are usually irreversible and chronically progressive. Therefore, 70.0% of healed foot ulcers recur within five years[12]. Moreover, treatment itself is very challenging and often needs to be long lasting. It requires not only expert interference, orthopedic appliances and antimicrobial drugs but also costly topical dressings and inpatient care[13-14]. Not surprisingly, this leads to substantial economic burden. Healing of a single ulcer costs approximately $17,500[15]. In cases where lower extremity amputation is required, health care is even more expensive $30000 to 33500[16]. These costs do not even represent the total economic burden, since costs related to loss of productivity, preventive efforts, rehabilitation and homecare should also be considered. When all this is taken into account, 7.0% to 20.0% of total expenditure on diabetes in North America and Europe might be attributable to diabetic foot ulceration[17]. This study was undertaken considering the gravity of the problems and thereby increasing the perceptions of the attending nurses to prevent diabetic foot ulcer.

Methodology

This descriptive cross-sectional study was carried out to assess status of knowledge and practices of hospital nurses regarding the causes, clinical care and prevention of diabetic foot ulcer a hospital-based selected study. This study was conducted at the Rajshahi Diabetic Association General Hospital, Rajshahi, Bangladesh which was a tertiary level teaching hospital and was located at Rajshahi Metropolitan City of Bangladesh. Approximately 50 patients per day were admitted in this hospital. The study was carried out from December 2013 to April 2014. All the nurses who were working in this hospital were selected as study population. The sampling technique was purposive.

Results

Out of 50 nurses' majority 21(42.0%) belonged to the age group of 30 to 39 years and 15(30.0%) were in 40 to 49 years' age group. The study revealed that males were 12(24.0%) and females were 38(76.0%) of the respondents. Most of the respondents were Muslim and married which were 45(90.0%) and 47(94.0%) respectively. Regarding educational qualification, Diploma in Nursing 44(88.0%). About 22(44.0%) and 21(42.0%) nurses did their job for (0 to 10) years and (11 to 20) years respectively (Table 1).

Among the nurses 74.0% had knowledge on diabetic foot ulcer and the same percentage of nurses perfectly managed diabetic foot ulcer of patients. In this study it was found that 34(68.0%) nurses knew that Diabetes could damage the nerves of the legs & feet and 20(40.0%) nurses had knowledge of smoking, alcohol & depression as the causes. As regard to the knowledge about factors increases the risk of foot ulcer, it was found that 35(70.0%) nurses' response was that the reduced sensation on the feet with poorly controlled diabetes and 30(60.0%) of their response was the previous foot ulceration or amputations. Regarding the types ulcer, 42(84.0%) nurses responded that deep ulcer to tendon or joint capsule and 41(82.0%) responded deep ulcer with abscess, osteomylitis or joint sepsis. About 41(82.0%) nurses told that feet regularly examined and 44(88.0%) expressed patient's education, as the preventive measures. About 39(78.0%) nurses responded complete rest of foot, 38(76.0%) had knowledge of treatment of the infection and 34(68.0%) nurses knew that Wound care, blood sugar control, skin grafting and oxygen, antibiotic, regular dressing as the management of the foot ulcer (Table 2).

Table 1: Distribution of Nurses according to their Socio-Demographic Characteristics (n=50)

Variables	Frequency	Percentage
Age Group		
30to 39 Years	21	42.0
40 to 49 Years	15	30.0
50 to 59 Years	14	28.0
Gender		
Male	12	24.0
Female	38	76.0
Religion		
Muslim	45	90.0
Hindu	3	6.0
Christian	2	4.0
Buddhist	0	0.0
Marital status		
Single	2	4.0
Married	47	94.0
Widow	1	2.0
Professional Qualification		
Diploma in nursing	44	88.0
B.sc. in nursing or public health	3	6.0
Diploma in midwifery	2	4.0
MPH/M. Sc	1	2.0
Length of service		
0 to 10 Years	22	44.0
11 to 20 Years	21	42.0
21 to 30 Years	6	12.0
31 to 40 Years	1	2.0

Discussion

Diabetic foot ulcers are common. If treatment is delayed or improper treatment is given, these lesions can lead to infection, gangrene and amputation. The descriptive design of cross sectional study was conducted at Rajshahi Diabetic Association General Hospital among 50 nurses from December, 2013 to April, 2014 using a pretested semi-structured questionnaire and face to face interview technique was adopted. This study shows that, among the

Table 2: Nurses Knowledge Related Multiple Choice Question (n=50)

Question	Parameter	**Answer**			
		Correct		**Wrong**	
		n	**%**	**n**	**%**
Knowledge about the causes of diabetic foot ulcer.	a. Diabetes can damage the nerves of the legs and feet	34	68	16	32
	b. Noany cause	39	78	11	22
	c. Lack of blood suger control	35	70	15	30
	d. Smoking,alcohol and depression	20	40	30	60
Knowledge about factors increases the risk of foot ulcer	a. reduced sensation on the feet with poorly controlled diabetes	35	70	15	30
	b. good sensation on the feet with controlled diabetes	40	80	10	20
	c. previous foot ulcerations or amputations	30	60	20	40
	d.any other risk	39	78	11	22
Knowledge about the types of diabetic foot ulcer	a. superficial ulcer	33	66	17	34
	b. deep ulcer to tendon or joint capsule	42	84	8	16
	c.deep ulcer with abscess, osteomyelitis or joint sepsis	41	82	9	18
	d. diabetic wound	28	56	22	44
	b. common topeople who have no diabetes	31	62	19	38
	c. cigarette smoking	41	82	9	18
	d. Other	36	72	14	28
Knowledge about prevention of diabetic foot ulcer	a. Feet regularly examined	41	82	9	18
	b. no need to control diabetes mellitus& regular foot care	31	62	19	38
	c. patient education	44	88	6	12
	d. others	18	36	32	64
Knowledge about the management of diabetic foot ulcer	a.Wound care ,blood sugar control, skin grafting & oxygen, antibiotic, regular dressing,	34	68	16	32
	b.Treatment of the infection	38	76	12	24
	c. complete rest of the foot	39	78	11	22
	d. no role of antibiotic & regular dressing	37	74	13	26
	b.No bathing and sterilization	39	78	11	22
	c. Exercise regularly	33	66	17	34
	d. Infection control	37	74	13	26
	b. Restricted the attendancd of the patient	33	66	17	34

nurses 74% has knowledge on diabetic foot ulcer and the same percentage of nurses do perfectly management of diabetic foot ulcer of patients. In this study it is found that 68% nurses know that diabetes can damage the nerves of the legs & feet. A study conducted in Pakistan on nurses shows that 65.3% has knowledge about ulcer care which is consistent with the findings of this study[18].

As regard to the knowledge about factors increase the risk of foot ulcer, it is found that 70% nurses have knowledge about the reduced sensation on the feet with poorly controlled diabetes and 60% respond about the previous foot ulceration or amputations. Regarding the types of ulcer, 84% nurses respond that deep ulcer to tendon or joint capsule & 82% respond deep ulcer with abscess, osteomyelitis or joint sepsis.

Regarding knowledge about prevention of diabetic foot ulcer, about 82.0% nurses opine that feet regularly examined. Another studies conducted in Turkey among nurses reveal that 22.5% perform foot examinations on diabetic patients which is inconsistent with this study[19]. The study shows that 88% express patient's education, as the preventive measures. A study conducted in Turkey on nurse's shows that 19.10% give education to the patients with diabetic foot problems which is inconsistent with the findings of this study[19].

In this study 34.0% nurses have good knowledge. A study conducted in Karad India shows that the nurses have average knowledge in 24.0% which is consistent with result of this study[20]. In this study 62% nurses have knowledge on prevention of diabetic foot ulcer. A study conducted in Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) hospital, Dhaka in Bangladesh shows that the nurses have knowledge 52.6% which is consistent with result of this study[21].

About 78.0% nurses respond complete rest of foot, 76.0% have knowledge of treatment of the infection. Nurses know

that wound care, blood sugar control, skin grafting and oxygen, antibiotic, regular dressing as the management of the foot ulcer. This study will help to create awareness of the nurses regarding diabetic foot ulcer and thereby will help to improve better nursing care for these type of diabetic problems.

Conclusion

In this study it is found that two third of the nurses know that diabetes can damage the nerves of the legs and feet and most of the nurses respond about the reduction of sensation on the feet with poorly controlled diabetes. The study shows that majority have knowledge about deep ulcer to tendon or joint capsule & most of the nurses know about deep ulcer with abscess, osteomyelitis or joint sepsis. Majority have knowledge about patient's education. Strict glycaemic control is mandatory to reduce the incidence of diabetic foot ulcer. Diabetic patients should take special care of their feet. Therefore, the attending nurses should posses adequate knowledge about diabetic foot ulcer's care and prevention.

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Original Article

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Antimicrobial Susceptibility Pattern of Clinical Isolates of *Acinetobacter baumannii* at a Tertiary Care Hospital in Dhaka City

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Abstract
Background: *Acinetobacter baumannii* infections are often extremely difficult to treat because of their widespread resistance to the major groups of antibiotics. **Objectives:** The purpose of the present study was to find out the antimicrobial susceptibility pattern of *Acinetobacter baumannii* isolates obtained from endotracheal aspirate, blood, urine and wound swab of patients of Dhaka Medical College and Hospital. **Methodology:** This cross sectional study was carried out in the department of Dhaka Medical College and Hospital over a period of one year, from July 2015 to June 2016. Urine, endotracheal aspirate, wound swab and blood samples were collected. Organisms were isolated and identified by culture, Gram staining and biochemical tests. Antimicrobial susceptibility test was done for all isolated *Acinetobacter baumannii* by disc diffusion method. **Results:** A total number of 300 urine, endotracheal aspirate, wound swab and blood samples were studied. Out of 300 samples, 65.3% gram negative bacteria were isolated. Among the isolated gram negative bacteria 13.3% cases were *Acinetobacter baumannii*. Maximum number of *Acinetobacter baumannii* were isolated from endotracheal aspirate (41.3%) followed by blood (16.7%), wound swab (3.9%) and urine (2.7%). All isolates (100.0%) were found resistant to aztreonam. Higher level of resistance was also recorded for amoxiclav, ceftazidime, ceftriaxone, cefotaxime and cefepime (92.3%), piperacillin-tazobactam (88.5%), ciprofloxacin, amikacin and gentamicin (84.6%), imipenem and meropenem (80.8%). Minimum resistance was shown towards colistin (11.5%) and tigecycline (23.1%). **Conclusion:** In conclusion *Acinetobacter baumanni* is resistant to all commonly used antibiotics except colistin and tigecycline. *[J Monno Med Coll December 2019;5(2): 39-42]*

Keywords: Antimicrobial susceptibility pattern, Acinetobacter baumannii, endotracheal aspirate.

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Introduction

Serious nosocomial infection by the pathogen *Acinetobacter baumannii* is gradually increasing[1]. Historically, Acinetobacter spp. have been associated with opportunistic infections that were rare and of modest severity; the last two decades have seen an increase in both the incidence and seriousness of *Acinetobacter baumannii* infection, with the main targets being patients in intensive-care units[2]. Acinetobacter spp. can survive in environment for prolong period and is a frequent cause of outbreaks of infection and healthcare-associated infections[3]. In an international study in ICUs, the Acinetobacter infection rate was 19.2% in Asia, 17.1% in Eastern Europe, 14.8% in Africa, 13.8% in Central and South America, 5.6% in Western Europe, 4.4% in Oceania and 3.7% in North America[4].

Multidrug resistant *Acinetobacter baumannii* is a rapidly emerging opportunistic pathogen associated with a variety of nosocomial infection, including ventilator-associated pneumonia, bacteremia, surgical site infections, secondary meningitis and urinary tract infections[5-6]. Artificial ventilation and other invasive procedures, exposure to antibiotics, colonization pressure, environmental contamination in ICU

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and underlying illness facilitate the spread of these multidrug-resistant species in ICU[7].

Formerly, Acinetobacter spp. were susceptible to beta-lactam antibiotics, mainly ceftazidime and carbapenems. In recent times, the clinical isolates demonstrating resistance to cephalosporins and carbapenems are very high[8-9]. However, several studies have suggested that tigecycline and colistin may be effective in infections caused by carbapenem resistant strains of *Acinetobacter baumannii*[10-11]. Reduced *Acinetobacter baumannii* susceptibility to these drugs has recently been reported from several countries across the world[12-13].

In hospital, monitoring of bacterial etiologies and infection patterns prevent development of drug resistance. Knowledge of sensitivity pattern of the organism isolated in hospital is helpful in selecting empirical therapy. In this country, there are few data about *Acinetobacter baumannii* isolation and their antibiotic susceptibility pattern. Therefore, the purpose of the study was to know the antimicrobial susceptibility pattern of clinical isolates of *Acinetobacter baumannii*.

Methodology

This cross sectional study was carried out at Department of Microbiology in Dhaka Medical College (DMC), Dhaka, Bangladesh over a period of one year which was from July 2015 to June 2016. Tracheal aspirate, blood, urine and wound swab samples were collected from all recruited patients for microscopy, culture and sensitivity testings. Samples were collected from patients of all age groups, both sexes, who were critically ill and suspected for pneumonia, urinary tract infection, septicaemia, skin and soft tissue infection. Samples were inoculated on Blood Agar and MacConkey Agar plates under strict aseptic conditions. Plates were incubated at 37 for 24 to 48 hours. *Acinetobacter baumannii* was identified and confirmed by Gram staining as Gram negative coccobacilli or cocci in pairs, non-motile, oxidase negative, Alkaline/Alkaline (K/K) reaction in Triple sugar Iron (TSI) slant, catalase positive, Indole negative, Citrate utilization test positive, urease test negative. It showed Oxidative –Fermentative (O/F) test –oxidative[14-16]. Susceptibility to antimicrobial agents of all isolates was done by Kirby Bauer modified disc diffusion technique using Mueller Hinton agar plates and zones of inhibition were interpreted according to CLSI guidelines (2015)17. Antibiotic discs such as ceftazidime (30 µg), cefotaxime (30 µg), ceftriaxone (30 µg), cefepime (30 µg), amoxiclav (amoxicillin 20 µg & clavulanic acid 10 µg), ciprofloxacin (5 µg), amikacin (30 µg), gentamicin (10 µg), piperacillin-tazobactam (100/10 µg), aztreonam (30 µg), imipenem (10 µg), meropenem (10 µg), tigecycline (15 µg) and colistin (10 µg) were used. Susceptibility of the *Acinetobacter baumannii* to tigecycline was determined by using 15 µg tigecycline disc and interpreted according to the criteria of the United States Food and Drug[18].

Results

Total 300 samples were studied. Of which 130 were wound swabs, 80 were urine, 50 were endotracheal aspirates and 40 were blood samples. From 300 samples, 196 (65.3%) gram negative bacteria were isolated. Among the isolated gram negative bacteria, 26 (13.3%) were Acinetobacter baumannii. Maximum number of Acinetobacter baumannii were isolated from endotracheal aspirate 19 (41.3%) followed by 4 (3.9%) from wound swab, 2 (16.7%) from blood and one (2.7%) from urine samples (Table 1).

Table 1: Distribution of *Acinetobacter baumannii* isolated from different samples

Type of Specimens	Isolated Gram Negative Bacteria	Positive for *Acinetobacter baumannii*	Total
Wound swab	101(77.7%)	4 (3.9 %)	130
Urine	37 (46.3%)	1 (2.7%)	80
Endotracheal aspirate	46 (92.0%)	19 (41.3%)	50
Blood	12 (30.0%)	2 (16.7%)	40
Total	**196 (65.3%)**	**26 (13.3%)**	**300**

All isolated Acinetobacter baumannii (100.0%) were found resistant to aztreonam. Higher level of resistance was also recorded for amoxiclav, ceftazidime, ceftriaxone, cefotaxime and cefepime (92.3%), piperacillin-tazobactam (88.5%), ciprofloxacin, amikacin and gentamicin (84.6%), imipenem and meropenem (80.8%). Minimum resistance was shown towards colistin (11.5%) and tigecycline (23.1%) (Table 2).

Table 2. Antimicrobial susceptibility pattern of the isolated *Acinetobacter baumannii* (n=26)

Antimicrobial agent	Sensitive	Resistant
Imipenem	5 (19.2%)	21 (80.8%)
Meropenem	5 (19.2%)	21 (80.8%)
Ceftriaxone	2 (7.7%)	24 (92.3%)
Ceftazidime	2 (7.7%)	24 (92.3%)
Cefotaxime	2 (7.7%)	24 (92.3%)
Cefepime	2 (7.7%)	24 (92.3%)
Amoxiclav	2 (7.7%)	24 (92.3%)
Amikacin	4 (15.4%)	22 (84.6%)
Gentamicin	4 (15.4%)	22 (84.6%)
Aztreonam	0 (0.0%)	26 (100.0%)
Ciprofloxacin	4 (15.4%)	22 (84.6%)
Piperacillin-Tazobactam	3 (11.5%)	23 (88.5%)
Colistin	23 (88.5%)	3 (11.5%)
Tigecycline	20 (76.9%)	6 (23.1 %)

Discussion

The Acinetobacter baumannii has emerged as some of the most important opportunistic pathogens within the hospital environment, being able to colonize and produce infections in most immune-compromised patients, especially from

intensive care units[19]. Antimicrobial treatment of such severe infections is complicated by a widespread multidrug resistance pattern[20]. Multidrug-resistant *Acinetobacter baumannii* is recognized to be among the most difficult antimicrobial-resistant gram-negative organism to control and treat[21].

In this study, out of 196 gram negative bacteria, 26 (13.3%) are *Acinetobacter baumannii* isolated from wound swab, urine, ETA and blood samples. This finding is in agreement with the study carried out by Jaggi et al[22] where figures of *Acinetobacter baumannii* isolates are 9.4% of the total gram negative isolates. In BSMMU, 33.7% Acinetobacter species were isolated from different ICU sample[23]. The reasons behind the higher isolation rate of *Acinetobacter baumannii* might be due to the fact that all the samples of the study were collected from ICU but in the present study samples have been collected from both general ward and ICU.

Most of the isolates of *Acinetobacter baumannii* have been obtained from tracheal aspirate (41.3%). Cevahir et al[24] also showed high prevalence (59.3%) of *Acinetobacter baumannii* in tracheal aspirate. Higher isolation rate from tracheal aspirate may be due to contaminated respiratory instruments, infective aerosols from the ICU environment, and contaminated hands and apparel of the healthcare workers. In this study isolation rate from urine sample is very low (2.7%). The result is almost similar to Jaggi et al[22] and Nahar et al23 who reported it as 2.9% and 3.1% respectively. This shows that *Acinetobacter baumannii* shows relatively low prevalence in causing UTI.

This study has showed that all (100.0%) isolated *Acinetobacter baumannii* are resistant to aztreonam. High level of resistance has recorded for amoxiclav, ceftazidime, ceftriaxone, cefotaxime and cefepime (92.3%), piperacillin-tazobactam (88.5%), ciprofloxacin, amikacin and gentamicin (84.6%), imipenem and meropenem (80.8%) and maximum activity with an overall low resistance shown in colistin (11.5%) and tigecycline (23.1%). In a study by Nahar et al[23] in BSMMU 100% resistance was recorded towards amoxicillin, ceftriaxone, cefuroxime and gentamicin. Higher level of resistance was recorded towards amikacin (68.4%) and Imipenem (66.7%) but lower level of resistance shown in colistin (10.5%). The increasing prevalence of multidrug resistant *Acinetobacter baumannii* has led to very limited therapeutic options, but colistin and tigecycline is considered as one of the few therapeutic options[25-26].

Conclusion

Acinetobacter baumanni is resistant to all commonly used antibiotics. Only lower resistance is seen in colistin and tigecycline. However, colistin and tigecycline resistant isolates are emerging slowly. It is a great challenge for the physician to treat multidrug resistant *Acinetobacter baumannii*. Therefore, national antibiotic policy and guidelines is necessary due to increase resistance patterns. Producing a local antibiogram database will improve the knowledge of antimicrobial resistance patterns in Bangladesh and will also help to improve treatment strategies.

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Review Article

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Fever with Rash in Children: A Review Update

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Abstract
In children, fever with skin rash is one of the common presenting complain in day to day practice. The differential diagnosis for febrile patients with rash is extensive, and many infectious and some non-infectious agents cause this syndrome. Although in many cases, the disease is benign but in some cases, it may be the first and/or the sole manifestation of a serious and life-threatening condition. For clinical diagnosis, a complete history, careful clinical examination, characteristics of the rash and epidemiological features are the most important. This article reviews common infectious and non-infectious causes for fever with rash in children and suggests a logical approach to obtain a correct diagnosis. *[J Monno Med Coll December 2019;5(2): 43-47]*

Keywords: Febrile; illness; skin rash; infectious disease; non-infectious disease.

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Introduction

Many rashes that appear during febrile illnesses are in fact caused by various infectious diseases. Since infectious exanthematous diseases range from mild infections that disappear naturally to severe infectious diseases, focus on and basic knowledge of these diseases is required. Although the appearance of the rash is essential for diagnosis of some diseases, rashes are generally non-specific findings, and play supportive roles in the differential diagnosis of other diseases. These include non-infectious diseases, so that comprehensive knowledge of these other diseases is required for clinical diagnosis of a febrile illness with a rash. A skin rash is a symptom/sign that appears during the course of a systemic or localized disease, and therefore could be clinically meaningful as a characteristic diagnostic finding in a very small subset of specific diseases. However, rashes are generally nonspecific and have complementary significance in differential diagnosis when combined with antecedent and concurrent symptoms, medication and allergy history, or social and environmental background, as well as the characteristics of the rash itself, such as morphology, location and distribution[1].

Diagnostic Approach

For clinical diagnosis of diseases accompanied by a rash and fever, a complete history must be taken, including recent travel, contact with animals, medications, and exposure to forests and other natural environments. In addition, time of onset of symptoms could be helpful in the clinical diagnosis. It is also critical to understand the patient's history of specific diseases, including cardiovascular, sexually-transmitted, and immunodeficiency diseases; in particular, an evaluation of immune status is needed[2]. In recent time, with increased travel and population movements, imported infections with secondary local transmission are of great concern and outbreaks in susceptible populations may present containment issues. In this aspect, imported viral infections such as arboviral infections (Chikungunya, dengue, Japanese

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encephalitis) should be considered through the recent travel history[3].

The location, pattern, and rate of emergence, as well as accompanying pruritus, association between the rash and fever, and the morphological classification, all play supporting roles in the diagnosis[4]. In addition, the morphology of the primary skin lesions associated with the rash and the distribution and arrangement of secondary lesions, must be monitored. Especially, morphological patterns, seasonal occurrence, and the presence of enanthem can help physicians make a quicker etiological diagnosis, which, if confirmed by tests, ensures timely and appropriate treatment while avoiding unnecessary therapy. In fact, knowledge of exanthem morphologies, season and historical data combined with selective laboratory testing should lead to appropriate management of these patients and their families. Several researches concerned with the basis of morphology, the associated symptoms and laboratory results, they concluded that a good correspondence between morphology and etiology was found and their association with pruritus or constitutional symptoms proved to be important diagnostic clues. The erythematous-vesicular pattern was exclusive to viral infections. The erythemato-pustular and papular patterns were found only in drug-related cases and in some undiagnosed cases. In contrast, the macular and maculopapular patterns were almost evenly distributed among the various etiologies, although their colour was duskier in the drug-related exanthems. Severe pruritus was associated with drug-related exanthems[5]. Furthermore, examination is necessary for lymphatic enlargement, abnormal oral, genital, and conjunctival findings, enlargement of the liver, presence or absence of tender areas, stiff neck, and neurologic findings[6].

Table 1: History Taking in A Child with Fever & Rash[7]

List of History
Onset
Duration and type of fever
Evaluation of rash
Temporal association between fever and rash
Sequence of distribution of rash
Blanching or non-blanching
Associated symptoms suggestive of systemic illness
Presents of similar rashes in close contacts
Any contact with infection or travel abroad
Recent intake of medicines
Exposure to allergens.

Dengue fever: It is the most common Arthropod born (Aedes Mosquito) viral disease which affects infants, children and adults. In Bangladesh around 350,000 dengue cases were reported across the country in July to September 2019 and increased of 85.0% on the same period last year. Common clinical feature includes sudden onset of fever, maculopapular rash, retro orbital pain, vomiting, diarrhea, backache, muscle and joint pain. Rash is diffuse flushing, maculopapular or rubelliform, begins on trunk and spreads to extremities and face, may be petechiae on extremities & pruritus during recovery[11].

Table 2: Common Primary Skin Lesions[8]

Skin Lesion	Characteristics
Macule	Alteration of colour of skin without elevation or depression (non-palpable) less than 0.5cm
Papule	Small solid epidermal elevation less than 0.5cm in diameter
Purpura	Extra vasation of Blood (RBC) in dermis which is non blanchable
Vesicle	Small fluid filled cavity less than 0.5cm in diameter
Bulla	Larger vesicle more than 0.5cm in diameter
Pustule	Visible collection of pus in a cavity (blister)

Table 3: Common Differential Diagnosis[9-10]

Name of Infectious Diseases
Dengue Fever
Chikungunya Fever
Measles
Rubella
Roseola
Hand foot and mouth disease
Herpetic stomatitis
Chicken pox
Erythema infectiosum
Rickettsial infection
Scarlet fever
Meningococcal infection
Toxic shock syndrome
Staphylococcal scalded skin syndrome
Name of Non-infectious Diseases
Drug eruption
Systemic onset juvenile idiopathic arthritis
Kawasaki disease

Chikungunya fever: It is also a mosquito transmitted viral illness. Aedes mosquito responsible for both Dengue and Chikungunya. Fever associated with maculopapular rash in 20 to 50% cases. Other clinical features include polyarthritis, arthralgia, headache and sometimes long-lasting polyarthritis[12].

Measles: It is a serious infection characterized by high fever, an enanthem, cough, coryza, conjunctivitis, and a prominent exanthema. After an incubation period of 8 to 12 days, the prodromal phase begins with a mild fever followed by the onset of conjunctivitis with photophobia, coryza, a prominent

cough, and increasing fever. Koplic spots represent the enanthem and are the pathognomonic sing of measles, appearing 1 to 4 days prior to the onset of the rash. They first appear as discrete red lesions with bluish white spots in the center on the inner aspects of the cheeks at the level of the premolars. They may spread to involve the lips, hard palate, and gingival. They also may occur in conjunctival folds and in the vaginal mucosa. Koplic spots have been reported in 50.0% to 70.0% of measles cases but probably occur in the great majority. Symptoms increase in intensity for 2 to 4 days until the 1st day of the rash. The rash begins on the forehead (around the hairline), behind the ears, and on the upper neck as a red maculopapular eruption. It then spreads downward to the torso and extremities, reaching the palms and soles in up to 50.0% of the cases. The exanthem frequently becomes confluent on the face and upper trunk. With the onset of the rash, symptoms begin to subside. The rash fades over about 7 days in the same progression as it evolved, often leaving a fine desquamation of skin in its wake. Of the major symptoms of measles, the cough lasts the longest, often up to 10 days. In more severe cases, generalized lymphadenopathy may be present, with cervical and occipital lymph nodes especially prominent9. Diagnosis based on typical rash and fever with the presence of any one of the '3c': cough, coryza and conjunctivitis[13].

Rubella: This rash, like measles, also progresses from the face to the body. However, progression is complete within a few hours, which is much faster than measles, and the rash has a lighter colour. Although it is not easy to differentiate the rash from measles within 24 h of onset, the rash fades within 2 to 4 days, which is faster than measles, with no residual skin pigmentation after fading of the rash. However, desquamation can be seen, as in measles. Although lymph node enlargement may be seen behind the ears or below the occiput in rubella, this finding is nonspecific, and is not essential for diagnosis. Since rubelliform rashes occur during the evolution of various viral diseases, rubella can be diagnosed only by the overall clinical course[9,14].

Roseola (Exanthem subitem): It is a typical infectious systemic maculopapular rash that is caused by human herpesvirus 6. The rash shows a unique progression, in that fever lasts for about 3 days, and the rash appears as soon as the fever ends; it then spreads to the neck, the face, and the extremities within 24 h, and disappears after 1 to 2 days. Rashes in this disease, unlike those of measles and rubella, are indistinct in the face and the extremities, and show papular or macular features that are light rose in colour[9,14].

Hand Foot and Mouth Disease (HFMD): It is typically a benign and common illness among infants and children characterized by rapidly ulcerating vesicles in the mouth and vesicular lesions on the hands, feet and diaper region, with or without low grade fever. Other clinical features include diarrhoea and abdominal pain. The oropharynx is inflamed and contains scattered vesicles on the tongue, buccal mucosa, posterior pharynx, palate, gingiva or lips. These may ulcerate, leaving 4 to 8 mm shallow lesions with surrounding erythema. Maculopapular, vesicular, and pustular lesions may occur on the hands and fingers, feet, and buttocks and groin[8-9].

Rickettsial Disease are a group of febrile illness caused by obligate intracellular gram-negative bacteria. Transmitted to man by arthropods vectors. Clinical features include fever, rash, headache, nausea, vomiting, diarrhea, myalgia, arthralgia, altered mental status, photophobia, seizure, lymphadenopathy, hepatosplenomegaly, conjunctival injection, eschar and edema. Rash appear on day 2 to day 5, frequently involve palm and sole, macular or maculopapular in nature, may pruritic & gangrenous. Eschar is a painless crusty necrotic tissue with or without surrounding erythematous hallow due to arthropod bite[9].

Scarlet fever: It is an upper respiratory tract infection associated with a characteristic rash, which is caused by an infection with pyrogenic exotoxin (erythrogenic toxin)-producing Group A Streptococcus (GAS) in individuals who do not have antitoxin antibodies. It is now encountered less commonly and is less virulent than in the past, but the incidence cyclic, depending on the prevalence of toxin-producing strains and the immune status of the population. The rash appears within 24 to 48 hours after onset of symptoms, although it may appear with the first signs of illness. It often begins around the neck and spreads over the trunk and extremities. The rash is a diffuse, finely papular, erythematous eruption producing bright red discoloration of the skin, which blanches on pressure. It is often accentuated in the creases of the elbows, axillae, and groin. They skin has a goose-pimple appearance and feels rough. The cheeks are often erythematous with pallor around the mouth. After 3 to 4 days, the rash begins to fade and is followed by desquamation, initially on the face, progressing downwards, and often resembling a mild sunburn. Occasionally, sheet-like desquamation may occur around the free margins of the fingernails, the palms, and the soles. Examination of the pharynx of a patient with scarlet fever reveals essentially the same findings as with GAS pharyngitis. In addition, the tongue is usually coated and the papillae are prominent, giving the tongue a strawberry appearance[9].

Chicken Pox: It is an acute febrile rash illness that common in children. It has variable severity but is usually self-limited. Fever and other systemic symptoms usually resolve within 2 to 4 days after the onset of the rash. Varicella lesions often appear first on the scalp, face or trunk. The initial exanthem consists of intensely pruritic erythematous macules that evolve through the papular stage to form clear, fluid-filled vesicles. Clouding and umbilication of the lesions begin in 24 to 48 hr. While the initial lesions are crusting, new crops form on the trunk and then the extremities; the simultaneous presence of lesions in various stages of evolution is characteristic of varicella. The distribution of the rash is predominantly central or centripetal with the greatest concentration on the trunk and proximally on the extremities. Ulcerative lesions involving the mucosa of the oropharynx and vagina are also common; many children have vesicular

lesions on the eyelids and conjunctivae, but corneal involvement and serious ocular disease are rare. The average number of varicella lesions is about 300, but healthy children may have fewer than 10 to more than 1,500 lesions. Hypopigmentation or hyperpigmentation of lesion sites persists for days to weeks in some children, but severe scarring is unusual unless the lesions were secondarily infected[9,15].

Erythema Infectiosum: It is an exanthematous disease that is caused by human parvovirus B19. The hallmark of this disease is the characteristic rash, which occurs in three stages that are not always distinguishable. The initial stage is an erythematous facial flushing, often described as a "slapped-chick" appearance. The rash spreads rapidly to the trunk and proximal extremities in the 2nd stage. Central clearing of macular lesions occurs promptly, giving the rash a lacy, reticulated appearance. The rash tends to be more prominent on extensor surfaces, sparing the palms and soles. However, sometimes the rash may recur after a few weeks. Infectious erythema, unlike measles, rubella, and roseola, does not occur in infants, but mostly in school-aged children[9,16].

Herpetic Stomatitis: It presents a prodrome of up to 24 h of tingling, itching, or burning of oral cavity, as well as headache, nasal congestion, or mild flu-like symptoms and regional lymphadenopathy. The most frequent clinical manifestation of orolabial herpes is the "cold sore" or "fever blister". Lesions are usually broken vesicles that appear as erosions or ulcers on oral mucosa, tongue, tonsils and posterior pharynx, produces pain, foul breath, and dysphagia. In young children it may cause pharyngitis. Recurrences (95.0%) may be seen on the cheeks, eyelids, earlobes, hard palate and attached gingiva[16].

Meningococcal Infection: It often follows a mild upper respiratory tract infection associated with headache, influenza-like complaints, nausea, and muscle soreness. These symptoms can be so short lived that fever, obtundation, and other manifestations of meningitis are the initial findings. In fulminant meningococcemia, vomiting, stupor, precipitous development of a hemorrhagic rash, and hypotension may be evident within a few hours of the onset of symptoms. Milder cases develop at a slower pace. Skin findings in acute meningococcal infections are characteristically petechial, but transient macular or papular lesions which can resemble those seen in viral exanthems, may be evident. The petechiae are small and irregular with a "smudged" appearance. Although most often located on the extremities and trunk, lesions can also be found on the head, palms, soles, and mucous membranes. Extensive hemorrhagic lesions with central necrosis (suggillations) and bullae can develop. Gangrenous hemorrhagic areas (indistinguishable from purpura fulminans) can appear in severe meningococcemia, often with DIC[8,17].

Staphylococcal Scalded Skin Syndrome (SSSS): It usually occurs in infants and toddlers and is caused by coagulase-positive staphylococci. The characteristic skin lesions of this disease have sudden-onset, and are generalized, diffusely erythematous rashes accompanied by oedema around the eyes, with associated pain, and with gradual progression to a vesicular rash. Thereafter, skin lesions show Nikolsky's sign, in which the uppermost layer of skin is removed by even mild pressure or injury; tissue fluid leaks from the exposed skin, causing severe dehydration and electrolyte imbalance, and even aggravates nutritional deficiencies. In addition, the skin around the eyes and mouth is severely distorted. These skin lesions start to improve and recover after 1 week, when the systemic erythema disappears. Drug-induced toxic epithelial dermal necrolysis also shows similar findings, including systemic erythema and desquamation. However, while SSSS shows desquamation of only the superficial, epithelial granular layer, all the epithelial layers peel off in drug-induced toxic epithelial dermal necrolysis, which allows for differentiation[9,19].

Toxic Shock Syndrome symptoms include fever, hypotension, rash, muscular pain, and syncope; it is caused by Staphylococcus aureus. There are inflammatory findings in the mucosa of vagina, oropharynx, conjunctiva, oedematous erythema in the hands and feet, and scarlet fever-like rashes over the curved areas of the extremities. The most notable characteristic skin lesion in this syndrome is non-pitting systemic oedema. Thick skin desquamation appears on the hands and feet at around 7 to 14 days of disease progression, and might be followed by hair desquamation or shedding of fingernails and toenails after 1 to 2 months[19].

Drug Eruption manifest as various sudden-onset rashes, and are accompanied by systemic symptoms, including fever, arthralgia, lymphadenopathy, and liver enlargement, and can even be caused by drugs used for treatment of infectious diseases. Hence, it is not easy to distinguish a drug eruption from rashes caused by an infection, particularly those caused by a viral infection. It is therefore difficult to diagnose a drug eruption based on the pattern of the rash alone, meaning that the history is most important for diagnosis. In particular, it is necessary to check the medication history (including external preparations) from at least one week before onset of the rash, which also must be differentiated from infectious diseases[18].

Systemic Onset Juvenile Idiopathic Arthritis is characterized by arthritis, fever, rash and prominent visceral involvement, including hepatosplenomegaly, lymphadenopathy and serositis. The fever is often present in the evening and is frequently accompanied by a characteristic erythematous, macular rash. The evanescent salmon-coloured lesion classic for SJIA, are linear or circular, and are most commonly distributed over the trunk and proximal extremities. The classic rash is non-pruritic and migratory with lesions lasting <1 hour. Koebner phenomenon is often present[16].

Kawasaki Disease (KD) causes fever which is characteristically high (>38.3°C [101°F]), unremitting and unresponsive to antibiotics. The duration of fever without treatment is generally 1 to 2 week, but may persists for 3 to 4

wk. In addition to fever, the 5 principal clinical criteria of KD are bilateral non-exudative conjunctival injection with limbal sparing; erythema of the oral and pharyngeal mucosa with strawberry tongue and red, cracked lips; edema and erythema of the hands and feet; rash of various forms (maculo-papular, erythema multiforme or scarlatiniform) and nonsuppurative cervical lymphadenopathy, usually unilateral, with node size >1.5 cm. Perineal desquamation is common in the acute phase. Periungual desquamation of the fingers and toes begins 2 to 3 weeks after the onset of illness and may progress to involve the entire hand and foot. Diagnosis based on high grade fever for 5 days and presence of at least 4 out of 5 principal criteria. 20 to 25% of untreated children develop coronary artery abnormalities[9].

Acute Severe Febrile Illness with Skin Rash

The most common etiologies in these patients are meningococcemia or meningoencephalitis while other causes include TSS, SLE, bacterial sepsis like pneumococcal, staphylococcal, vibrio and severe viral diseases like haemorrhagic fever, measles, dengue fever. In particular, when patient show fever and rash postoperatively, TSS, surgical scarlet fever, and cholesterol emboli syndrome should be considered, and if patients have a central venous catheter or pacemaker, fever and rash due to bacteraemia must be considered. However, the most common cause of fever and rash in patients admitted to the intensive care unit is adverse reactions to drugs[19].

Table 4: Differential diagnostic manifestations in acute patients with febrile illness and rash[20]

Rashes and Concomitant Clinical Features	Suspected Diseases
Rash and shock	TSS, MC, pnuemococcal sepsis, *Staphylococcus aureus* sepsis, haemorrhagic fever
Rash and conjunctivitis	Kawasaki diseases, measles, TSS, PLEVA
Rash and abdominal pain	Typhoid fever, scarlet fever, cholesterol emboli syndrome, *Vibrio vulnificus*, SLE
Rash and diarrhoea	*Vibrio vulnificus*, gas gangrene, TSS, PLEVA
Rash and mental changes	SLE, MC, typhoid fever, *Staphylococcus aureus*, ABE
Rash and pulmonary infiltrates	SLE, atypical measles
Rash and reltive bradycardia	Typhus, typhoid fever, drug fever
Rash and bullae lesions	Vibrio vulnificus, gas gangrene
Rash and purpura	MC, cholesterol emboli syndrome, hypersensitivity vasculitis
Rash and adenopathy	SLE, Rubella, scarlet fever, Kawasaki diseases
Rash and splenomegaly	Typhoid fever, rubella, SLE

TSS=toxic shock syndrome; MC=meningococcemia; PLEVA=pityriasis lichenoides et varioliformis acuta; SLE=systemic lupus erythema; ABE=acute bacterial endocarditis

Conclusion

Fever with rash is a common clinical syndrome among children and are seen by both pediatricians and dermatologists. The causes are many and most of them are benign viral exanthemas. But in a small number of cases, it may be severe and life-threatening. The differential diagnosis is broad but systemic approaches could help clinicians establish a timely diagnosis. In this regard, a complete history must be taken including recent travels, contact with animals and drugs. In addition, the time of onset of symptoms, the characteristics of the rash (morphology, location, distribution) and association with fever and pruritus along with epidemiological clues are very important.

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Case Report

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Scar Endrometriosis after Caesarean Section: A Rare Case Report

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Abstract

Scar endometriosis is a rare form of extra-pelvic endometriosis that can occur after surgery involving the uterus. Direct mechanical implantation seems to be the most conceivable theory for scar endometriosis. Patient usually presents with lump and pain at surgical site. Often the diagnosis of endometriosis is not suggested until histology has been performed. Scar endometriosis is a rare cause of painful scar; therefore, high index of suspicion is suggested in clinching the diagnosis. The recommended treatment is wide surgical excision with at least 1 cm margin on all sides. While performing lower segment caesarean section some preventive measures should be taken to prevent its occurrence. Histopathological examination is mandatory, as there is rare possibility of malignant transformation. Follow-up is advisable to diagnose recurrence. *[Journal of Monno Medical College, December 2019;5(2): 48-49]*

Keywords: : Scar; endrometriosis; implantation; histopathology

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Introduction

Endometriosis is a common gynecological condition defined as the presence of functioning endometrial tissue outside the uterine cavity[1]. Endometriosis occurs in both diffuse and localized forms. A focal mass of endometrial tissue is known as an endometrioma. Although the diagnosis of endometriosis is relatively common, the variable locations of endometrial implants may make it an uncommon differential diagnosis. Ectopic implantation of endometrial tissue is often discovered in the pelvic cavity on the surface of the peritoneum, ovaries, pouch of Douglas and uterosacral ligaments[2]. Affecting an estimated 89 million women of reproductive age worldwide, endometriosis occurs in 5.0% to 10.0% of all women, often resulting in debilitating pain and infertility. However, extra pelvic endometriosis is an uncommon disorder and difficult to diagnose.

The various sites for extra pelvic endometriosis are bladder, kidney, bowel, omentum, lymph nodes, lungs, pleura, extremities, umbilicus, hernia sacs and abdominalwall[3]. The most common extrapelvic location for endometriosis is the abdominal wall, typically presenting within scars following gynecological or obstetric surgery[1]. Diagnosis of this disease is not an easy process due to being often mistaken for a suture granuloma, incisional hernia, lipoma, abscess, cyst or a strange body. However, a mass in a cesarean section scar, with symptoms of cyclic pain related to menses, is nearly pathognomonic. The imaging techniques such as CT, MR or ultrasound assist in identifying the condition but definitive diagnosis is usually made with histologic examination[4,5]. The present study describes a case of scar endometriosis and reviews the literature to elucidate physical signs and symptoms that may lead to earlier diagnosis and prompt treatment.

Case Presentation

Thirty years old female patient (Para 2 c/s, living 2) reported as outdoor patient to our gynecology department of Monno Medical College Hospital, Monno City, Manikgonj, Bangladesh in July, 2018, with chief complaints of pain at the site of caesarean scar during menstruation associated with swelling at the same site since the last two years. The swelling increases during menstrual bleeding. The patient had delivered her last child three years back by lower uterine cesarean section (LSCS). There was no history of endometriosis. For last two years, she noticed a swelling at the region of right side of caesarian scar, with dull aching

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constant pain at that site without any radiation. This pain used to get relieved for some time on taking some analgesics. She reported to our institute three months back. General and systemic examination of the patient revealed no abnormalities. Local examination revealed a mass of 4X3 cm, at right extreme side of Pfannensteil caesarean scar with slight tenderness, firm consistency with restricted mobility. A probable diagnosis of scar endometriosis was made, and was planned for surgical excision. All hematological investigations were within normal limits. Wide excision of the endometriotic tissue was done. Stitches were removed on postoperative day 8. Stitch line has healed without any recurrence. Histopathological findings confirmed the diagnosis of scar endometriosis. It shows endometrial tissue with haemorrhage and dilated endometrial gland.

Discussion

Endrometrioma is a well circumscribed mass of endometriosis. Abdominal wall endometrioma presents as a painful swelling resembling surgical lesions such as hernias, hematomas, granulomas, abscess and tumors. Therefore, that is why these cases generally first report to general surgeons. Scar endometriosis most commonly occurs after operation on the uterus and tubes. Incidence of scar endometriosis following hysterotomyis 1.1 to 2.0% whereas after cesarean section the incidence is 0.03 to 0.4% cases[6].

The reason for higher incidence after hysterotomy has been given as the early Decidua has more pleuripotential capabilities and can result in cellular replication producing endometrioma. Time interval between operation and presentation has varied from 3 months to 10 years in different series. The etiology of abdominal wall endometrioma is thought to be a result of transportation of endometrial tissue during surgical procedures and subsequently stimulated by estrogen to produce endometrioma. The simultaneous occurrence of pelvic endometriosis with scar endometriosis is infrequent6. This patient also did not have associated pelvic endometriosis. Another study observed that 25.0% of the patients who develop incisional endometriosis have concomitant pelvic endometriosis[7].

Correct preoperative diagnosis is attained only in 20 to 50% of cases. Currently, ultrasound examination along with Doppler study with clinical data is recommended for preoperative diagnosis as it is widely available with lower cost8. Fine-needle aspiration cytology is one of the diagnostic methods as in the present case, but possibility of incisional hernia and reimplantation of potential malignant cells should also be taken into consideration, as well. Magnetic resonance imaging and computed tomography scan have almost similar sensitivity and specificity of 90 to 92% and 91 to 98%, respectively. These modalities can be used to know the extent and depth of lesion for presurgical mapping[9].

Medical management with oral contraceptive pills, as well as progestogen and gonadotrophin-releasing hormone analogues provide symptomatic improvement, but recurrence is common after cessation of therapy. Recommended treatment is wide surgical excision with at least 1 cm margin on all sides and patch grafting of the facial defect, if required. Recurrence is always anticipated in all cases of endometriosis, which should be explained to patients before they undergo surgery. Patients should be followed-up for recurrence.

Malignancies in incisional endometriosis are rare, occurring in 0.31% of cases. The most common histological type is clear cell carcinoma[10]. Malignancy should be suspected in frequent recurrence or in fast-growing, large endometriosis[11]. With the increasing rate of LSCS, one can expect increase in the number of cases of scar endometriosis. Use of separate needles and mops for the uterine cavity and other tissues, closure of the visceral and parietal peritoneum and thorough cleaning and irrigation of abdominal wall wound before closure are the recommended steps to prevent scar endometriosis[12].

Conclusion

The present study describes a case of scar endometriosis which is confirmed by histopathological findings. Clinical suspicion is necessary for early diagnosis and prompt treatment of scar endometriosis. Histopathological findings confirmed the diagnosis of scar endometriosis.

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