MED EMERGENCY / URGENCE

ISSN 2222-9442

MJEM

MEDITERRANEAN JOURNAL OF EMERGENCY MEDICINE

Management of anaphylaxis in emergency medicine

What is the value of chest X-RAY for patients with acute chest pain?

Paediatric cardiac arrests in the northern emirates, United Arab Emirates

Spontaneous isolated coeliac artery dissection, mimicking thoracic aortic dissection

Necrotizing fasciitis in an infant: rare disease in an uncommon age group

Angioedème bradychinique

Actualités thérapeutiques face à une élévation de la pression artérielle aux urgences

Endorsed by Lebanese Resuscitation Council

Indexed by Index Medicus

2017 - N°25

NECROTIZING FASCIITIS IN AN INFANT: RARE DISEASE IN AN UNCOMMON AGE GROUP

ABOALFARAJ N, AGABAWI A, ABDULGADER R, ZAGHABA D, JAMJOOM R. Necrotizing Fasciitis in an infant: rare disease in an uncommon age group. Med Emergency, MJEM 2017; 25:38-39.

Key words: cellulitis, infections, nose, pediatric emergency, sepsis

ABSTRACT

Three months old girl known case of down's syndrome presented with what seemed to be an usual case of common cold with a nasal tip cellulitis that progressed to what was diagnosed later as multi-bacterial (pseudomonas aeruginosa and klebsiella pneumonia) nasal necrotizing fasciitis in an infant who survived the stormy clinical course.

Authors' affiliation:

Correspondent author: Roaa JAMJOOM, MD
Emergency Medicine Department, Faculty of Medicine, King Abdulaziz University
Jeddah 21589, Saudi Arabia
rsjamjoom@kau.edu.sa

Aboalfaraj N, MBBS[1], Agabawi A, MBBS[1], Abdulgader R, MBBS[1], Zaghaba D, MD[2], Jamjoom R, MD[2]
1. King Abdulaziz University Hospital, Jeddah Saudi Arabia
2. Emergency Medicine Department, Faculty of Medicine, King Abdulaziz University

Article history / info:

Category: Case report
Received: Jul. 20, 2016
Revised: Aug. 17, 2016
Accepted: Sept. 07, 2016

Conflict of interest statement:

There is no conflict of interest to declare

CASE

A three months old down syndrome female who is a product of 32 weeks pregnancy, corrected age one month presented to the emergency department (ED) with nasal ulcer or gangrene that started one week ago with nasal tip redness that progressed to involvethe nose and the nasal bridge. There was minimal bleeding with attempts to clean it. On day of presentation to ED the nasal wound started to turn black with no discharge or pus. Patient had history of runny nose and diarrhea associated with no fever.

In ED patient looked dehydrated. Her vitals were: heart rate 170 bpm respiratory rate 50 per min O_2 sat 96% and blood pressure 80/56 mmHg. The nose tip had a dry ulcer with gangrenous black margins. There were no apparent collections, pus or bleeds. The surrounding area including the nasal bridge showed cellulitis with no crepitus.

Fluids were started, full septic work up obtained and intravenous ampicillin and gentamicin started. The baby was admitted to the pediatric surgical floor for maxillofacial consult. Few hours later patient's condition deteriorated. She became hypotensive, acidotic, bradycardicwith desaturated, so she was intubated.

Blood works obtained showed complete blood count: White blood cell: 47.27 $k.\mu L^{-1}$ Neutrophil count 37 $k.\mu L^{-1}$ Hemoglobin 5.9 $g.dL^{-1}$ - platelet: 34 $k.\mu L^{-1}$

Coagulation profile: prothrombin time: 20 second - fibrinogen: 50 $mg.dL^{-1}$ - activated partial thrombin time: 82 second - D.Dimer: 2.6 $mg.L^{-1}$ - international normalized ratio: 1.7 ratio C-reactive protein: 148 $mg.L^{-1}$ and blood culture showed staphylococcus aureus.

Antibiotics were shifted to meropenem and vancomycin. A swab taken from the lesion showed gram negative bacilli (Pseudomonas aeruginosa and Klebsiella pneumonia). Histopathology taken from the lesion showed necrotic patch skin and nasal cartilage-debridement consistent with necrotizing fasciitis (NF). Patient underwent debridement in odd ratio by maxillofacial surgeons. Seven days later the patient was extubated and transferred to the ward, then discharged home in good condition with a follow up with maxillofacial for nasal reconstructive surgery.

During hospital stay immunologist worked her up, and she had no evidence of immunodeficiency.

DISCUSSION

NF is a potentially fatal, progressive soft tissue infection that typically occurs in adults, and only rarely occurs in infants [1].

The worldwide incidence in pediatric age group is at 0.4 per 100,000 [2] with most lesions reported on the trunk and some to be on the back [3].

Necrotizing fasciitis caused by Pseudomonas aeruginosa is exceptionally uncommon, with only a few cases reported in the literature [4]. The mortality associated with the disease with no intervention is as high as 80% and is 30-50% with intervention [2]. Delay in intervention is associated with poor outcome. Early debridement was associated with a significant decrease in mortality. The average time from admission to operation was 90 hours in non-survivors versus 25 hours in survivors [5].

The Army surgeon Joseph Jones first described necrotizing fasciitis, in 1871, during the American Civil War, and it was known as "hospital gangrene". Then in 1952, Ben Wilson used the term necrotizing fasciitis [6].

NF is defined as a rapidly progressive disease of the subcutaneous tissues, superficial fascia and superficial part of the deep fascia. The annual incidence of NF in children is found to be 2.93 cases per 1,000,000 per year [7].

In neonates, most cases of NF are secondary to an identifiable risk factor, such as omphalitis [8], scalp fetal monitoring [9], circumcision [8] septicemia [10] varicella, burn, insect bite [11], necrotizing enterocolitis [12], and post surgery [13]. Primary NF in neonates, with no causative factor, is very rare [14].

The site of involvement in NF depends on the initiating factor, and usually it involves the lower back [15], neck and scalp [16]; chest, upper or lower extremities [10].

Based on the causative organisms, NF is divided into two types. Type 1 NF in which the tissue culture will show more than one organism, such as a combination of gram positive, gram negative and anaerobes. The most commonly isolated organisms are Staphylococcus aureus, Streptococcus, Pseudomonas aeruginosa [10]. Escherichia coli, Shigella, Klebsiela and Enterococcus [11]. In contrast, type 2 NF is a monomicrobial infection, and usually it's group A Beta Hemolytic Streptococcus [11]. In our case the isolated organisms were pseudomonas aeruginosa and Klebsiela pneumonia, while the blood culture showed Staphylococcus.aureus only.

CONCLUSION

Neonatal NF is an uncommon bacterial infection of the skin, subcutaneous fat, superficial fascia, and deep fascia but often fatal. Clinically, it is characterized by marked tissue edema, rapid spread of inflammation, and signs of systemic toxicity as presented in our case.

We believe that our case is unique from several aspects:
1- Rarity of the disease in this age group.
2- Location of the lesion.
3- No identifiable precipitating or risk factor.
4- The polymicrobial or pseudomonas wound culture which makes it atypical.

REFERENCES

1. Abbott RE, Marcus JR, Few JW, Farkas AM, Jona J. Necrotizing fasciitis in infancy: an uncommon setting and a prognostic disadvantage. J Pediatr Surg 1999; 34:1432-4.
2. Magala J, Makobore P, Makumbi T, Kaggwa S, Kalanzi E, Galukande M. The clinical presentation and early Outcomes of necrotizing fasciitis in a Ugandan Tertiary Hospital- a prospective study. BMC Res Notes 2014; 7:476.
3. Ahmed S, Ali SR, Samani ZA. Pseudomonas necrotizing fasciitis in an otherwise healthy infant. Case Rep Infect Dis 2012; 2012:517135.
4. Lota AS, Altaf F, Shetty R, Courtney S, McKenna P, Iyer S.A case of necrotising fasciitis caused by pseudomonas aeruginosa. J Bone Joint Surg Br 2010; 92:284-5.
5. McHenry CR, Piotrowski JJ, Petrinic D, Malangoni MA. Determinants of mortality for necrotizing soft-tissue. Ann Surg 1995; 221:558-63.
6. Wilson B. Necrotizing fasciitis. Am Surg 1952; 18:416-31.
7. Eneli I, Davies HD. Epidemiology and outcome of necrotizing fasciitis in children: an active surveillance study of the Canadian Paediatric Surveillance Program. J Pediatr 2007; 151:79-84.
8. Sawin RS, Schaller RT, Tapper D, Morgan A, Cahill J. Early recognition of neonatal abdominal wall necrotizing fasciitis. Am J Surg 1994; 167:481-4.
9. Siddiqi, SF, Taylor, PM. Necrotizing Fasciitis of the Scalp. A Complication of Fetal Monitoring. Am J Dis Child 1982; 136:226-8.
10. Pandey V, Gangopadhyay AN, Gupta DK, Sharma SP, Kumar V, Tiwari P. Neonatal necrotising fasciitis managed conservatively: an experience from a tertiary centre. J Wound Care 2014; 23:270-3.
11. Fustes-Morales A, Gutierrez-Castrellon P, Duran-Mckinster C, Orozco-Covarrubias L, Tamayo-Sanchez L, Ruiz-Maldonado R. Necrotizing fasciitis: report of 39 pediatric cases. Arch Dermatol 2002; 138:893-9.
12. Ignacio RC, Falcone RA Jr., Warner BW. Necrotizing fasciitis: a rare complication of neonatal necrotizing enterocolitis. J Pediatr Surg 2005; 40:1805-7.
13. Abbott RE, Marcus JR, Few JW, Farkas AM, Jona J. Necrotizing Fasciitis in Infancy: An Uncommon Setting and a Prognostic Disadvantage. J Pediatr Surg 1999; 34:1432-4.
14. Lebel E, Karasik M, Shahroor-Karni S, Peyser A. Necrotizing upper limb fasciitis in a newborn: an uncommon life-threatening event. J Pediatr Orthop B 2012; 21:536-8.
15. Hsieh WS, Yang PH, Chao HC, Lai JY. Neonatal necrotizing fasciitis: a report of three cases and review of the literature. Pediatrics 1999; 103;e53.
16. Ameh EA, Mamuda AA, Musa HH, Chirdan LB, Shinkafi MS, Ogala WN.Necrotizing fasciitis of the scalp in a neonate. Ann Trop Paediatr 2001; 21:91-3.