

Peri-oral Bullous Impetigo: A Diagnostic Dilemma for Dentist (Bullous Impetigo Peri-Oral: Satu Dilema Diagnostik untuk Pengamal Pergigian)

A.S.I. ZAKARIA* & S.N.M.P. SOCKALINGAM

ABSTRACT

Bullous impetigo is a highly contagious skin infection commonly affecting children due to epidermolytic toxins of bacteria Staphylococcus sp. This presentation described a case of a 3 year-old Indian girl with bullous lesion around the peri-oral region. The lesion was initially thought to be of viral origin and was treated symptomatically. However, the lesion progressed without any resolution with more vesicles at distant sites. The patient was also having fever and refused any oral intake. At this point, a probable diagnosis of bacterial skin infection was considered and the patient was admitted. Intra-venous fluid was administered to rehydrate the patient and she was treated with topical antibiotic and antipyretic. The lesion resolved within 14 days without scarring. As dental practitioners, we should be aware of bacterial infection around the peri-oral region and consider it as part of a differential diagnosis so that an appropriate treatment can be given.

Keywords: Bacterial lesion; peri-oral bullae; skin infection

ABSTRAK

Bullous impetigo ialah infeksi kulit yang amat mudah berjangkit. Ia kerap berlaku dalam kalangan kanak-kanak dan terhasil akibat racun epidermolitik yang dihasilkan oleh bakteria Staphylococcus sp. Makalah ini membincangkan tentang lesi bula yang berlaku di kawasan peri-oral seorang kanak-kanak perempuan India berusia 3 tahun. Lesi ini pada mulanya dianggap sebagai jangkitan viral dan dirawat secara simptomatik. Akan tetapi, lesi ini tidak sembuh dan mula merebak ke bahagian badan yang lain. Pesakit pula mula mengalami demam dan enggan mengambil apa-apa makanan. Pada ketika itu, satu diagnosis pembeza infeksi kulit bakteria telah dipertimbangkan dan pesakit telah dimasukkan ke wad. Pesakit telah diberikan cecair secara intra-vena untuk proses rehidrasi. Pesakit juga dirawat dengan ubat demam dan antibiotik topikal. Lesi tersebut sembuh sepenuhnya tanpa sebarang parut dalam tempoh 14 hari. Sebagai pengamal pergigian, kita harus mempertimbangkan infeksi bakteria sebagai salah satu diagnosis pembezaan bagi lesi-lesi bula yang melibatkan kawasan peri-oral supaya rawatan yang sewajarnya dapat diberikan.

Kata kunci: Bula peri-oral; infeksi kulit; lesi bakteria

INTRODUCTION

Bullous impetigo is a highly contagious skin infection, affecting the superficial skin layer. It is also known as localized type of Staphylococcus scalded skin syndrome (SSSS). It commonly affects young children aged between 2 and 5 years old, although it can also occur at any age group (Johnston 2004; Mancini 2000; Sandhu & Kanwar 2004). It is the most common bacterial skin infection in children and the third most common skin infection, after dermatitis and viral warts, respectively (Brown et al. 2003; Cole & Gazewood 2007; Sladden & Johnston 2004). In United Kingdom it was reported yearly, that the incidence of impetigo in children up to 4 years old is 2.8% and the incidence decreases with age (George & Rubin 2003; McCormick et al. 1995). Staphylococcus aureus is the main causative organism, which either acts alone or in combination with Streptococcus pyogenes, a group A beta haemolytic Streptococcus (George & Rubin 2003; Koning et al. 2003).

Bullous impetigo often infect the neonates and young children as they lack in specific immunity and have decreased ability to achieve renal clearance of the toxin produced by the causative organism (Fritch et al. 1976; Sandhu & Kanwar 2004; Todd 1985). It spread through direct contact with the lesion or via nasal discharge of the infected person. The skin lesions are usually self limiting and heal without scarring. Systemic symptoms are not common, but may include weakness, fever and diarrhea.

We report a case of bullous impetigo skin infection affecting a child around the peri-oral region and discuss the need for dentist to consider this condition in their differential diagnosis so that prompt treatment can be instituted.

CASE REPORT

A 3 years old Indian girl with no previous medical illness was referred to the Dental clinic, at the Universiti Kebangsaan Malaysia Medical Centre (UKMMC) with

history of peri-oral lesion and low grade fever. She was initially seen by a general practitioner at a peripheral medical clinic, for some vesicles around the peri-oral region. She was then prescribed with a topical ointment. However, the lesion progressed without any resolution.

Extra oral examination showed multiple peri-oral crusting, as most of the vesicles had already ruptured. The crusting was surrounded by a red, raw, scalded skin with ragged edges. No fluid or pus discharge from the crusting was noted. She was having a low grade fever with no lymphadenopathy. Intra-orally, neither vesiculobullous lesion nor oral ulceration was found. Soft tissue and oral mucosa all appeared normal. An initial probable diagnosis of Herpes Simplex Type-1 infection was made. The parents were assured and symptomatic treatment was instituted.

A few days later, the patient returned to the clinic, with more vesicles spreading away from the peri-oral region into the cheek and nasal areas (Figure 1). There were also vesicles at distant sites especially on the back and lower extremities. She also refused oral intake. At this point, the patient was admitted for intravenous fluid management, to prevent dehydration. A skin swab from the vesicles from the lower extremities was taken and sent for histopathological examination. A differential diagnosis of bacterial infection was considered and the patient was treated with topical fusidic acid cream and antipyretic. The lesion resolves within 14 days without any scarring.

DISCUSSION

Staphylococcus aureus, the main causative organism for this infection is a Gram-positive bacterium which has numerous virulence factors that help them in establishing and maintaining the infection in human. This includes proteases, enterotoxins, cytolytic toxins, protein A and

exfoliative toxin. Exfoliative toxin (ET) was demonstrated to have three isoforms which include ETA, ETB and ETD. Exfoliative toxins are glutamate-specific serine proteases that specifically target and cleaves the peptide bond in desmoglein 1 (Dsg 1), a desmosomal cadherin-type cell-cell adhesion molecule that present in the granular layer of epidermis (Kato et al. 2011). This leads to acantholysis and intra-epidermal cleavage through the granular cell layer which later give rise to bullous formation (Kato et al. 2011; Sandhu & Kanwar 2004).

Clinically, bullous impetigo appeared as multiple superficial vesicle which later progress to rapidly enlarging, flaccid bullae with distinct margin. In time, the bullae will rupture, leaving multiple yellowish crusts (Mancini 2000). Bullous impetigo usually affects the facial region, arms, legs and buttocks. In most cases the lesion is self limiting and resolves without scarring.

Diagnosis is usually made based on clinical examination and presentation, but rarely a culture may be necessary. Bullous impetigo will heal spontaneously within 14 days, but treatment is provided to help in relieving the discomfort, improve cosmetic appearance and prevent the spread of the bacteria that may have the potential effect of causing other medical illnesses such as glomerulonephritis, septic arthritis and pneumonia (Cole & Gazewood 2007).

However, there is no standard protocol for treatment of bullous impetigo, as many treatment options are available. The usage of topical antibiotic such as Mupirocin and Fusidic Acid is recommended for a period of 7 days in a systemically well patient with limited disease (George & Rubin 2003). Oral antibiotics should only be considered in cases of extensive disease, thus minimizing the risk of bacterial resistant towards antibiotics. Oral Penicillin V is usually not effective, while other antistaphylococcal



FIGURE 1. Bullous impetigo; note the ruptured bullous lesion surrounding the peri-oral region extending into other facial sites

antibiotics still used, with no clear preference among them. The usage of topical disinfectant is of no value in treating bullous impetigo (Cole & Gazewood 2007).

The diagnosis of the bullous impetigo in peri-oral region should be made correctly and not to be mistaken for viral infection, which is also a common infection that affects young children. Dental practitioner should bear in mind that bacterial infection should be considered as part of a differential diagnosis in diagnosing vesicobullous lesion in the facial region. Thorough intra-oral examination could be the key factor that leads to the diagnosis, as in this condition there is no evidence of epithelial breakdown seen intra- orally, affecting the oral mucosa. In viral infection on the other hand, painful intra-oral ulcerations and gingivostomatitis may be of common findings, besides the multiple vesicles and bullae affecting the peri-oral region.

CONCLUSION

Although bullous impetigo is a common type of skin infection affecting children, dental practitioners are not often exposed to this condition compared with viral infections. The absence of intra-oral lesion should prompt one to look for lesions at distant sites and consider bacterial infection as a cause. Dental practitioners should be aware of it, so that definitive diagnosis can be made and appropriate treatment can be provided thus improving patient's quality of life.

ACKNOWLEDGEMENT

We would like to thank the parents of the patient for giving us kind permission to use their daughter's photograph in our case report.

REFERENCES

- Brown, J., Shriner, D.L., Schwartz, R.A. & Janniger, C.K. 2003. Impetigo: An update. *International Journal of Dermatology* 42: 251-255.
- Cole, C. & Gazewood, J. 2007. Diagnosis and treatment of impetigo. *American Family Physician* 75: 859-864,868.
- Fritsch, P., Elias, P. & Varga, J. 1976. The fate of staphylococcal exfoliation in newborn and adult mice. *British Journal of Dermatology* 45: 275-284.
- George, A. & Rubin, G. 2003. A systematic review and meta analysis of treatments for impetigo. *British Journal of General Practice* 53: 480-487.
- Johnston, G.A. 2004. Treatment of bullous impetigo and the staphylococcal scalded skin syndrome in infants. *Expert Review of Anti Infective Therapy* 2: 439-446.
- Kato, F., Kadomoto, N., Iwamoto, Y., Bunai, K., Komatsuzawa, H. & Sugai, M. 2011. Regulatory mechanism for exfoliative toxin production in *Staphylococcus aureus*. *Infection and Immunity* 79(4): 1660-1670.
- Koning, S., van Suijlekom-Smit, W.A. & Nouwen, J.L. 2003. Fusidic acid cream in the treatment of impetigo in general practice: Double blind randomised placebo controlled trial. *British Medical Journal* 324: 203-206.
- Mancini, A.J. 2000. Bacterial skin infections in children: The common and the not so common. *Pediatric Annals* 29: 26-35.
- McCormick, A., Fleming, D. & Charlton, J. 1995. *Morbidity statistics from general practice. Fourth National Study 1991-1992*. London: HMSO.
- Sandhu, K. & Kanwar, A.J. 2004. Generalized bullous impetigo in neonate. *Pediatric Dermatology* 21(6): 667-669.
- Sladden, M.J. & Johnston, G.A. 2004. Common skin infections in children. *British Medical Journal* 329: 95-99.
- Todd, J.K. 1985. Staphylococcal toxin syndromes. *Annual Review of Medicine* 36: 337-347.

Department of Operative Dentistry
Faculty of Dentistry
Universiti Kebangsaan Malaysia
Jalan Raja Muda Abdul Aziz
50300 Kuala Lumpur
Malaysia

*Corresponding author; email: shuhud_zakaria@yahoo.com

Received: 19 December 2011

Accepted: 18 May 2012