

Neonatal Facial Subcutaneous Abscess: A Case Report

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Abstract:

Skin and soft-tissue infections (SSTIs) are common diagnosis in both the pediatric and adult populations and include abscesses and cellulitis. An abscess is a focal, contained, purulent infection with a clearly defined “cavity” and surrounding inflammation involving the deep subcutaneous tissues. There has been overall increase in SSTIs, with a concomitant rise in the incidence of community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA). We here report a case of facial subcutaneous abscess in neonate, a 20-days-old male full term baby born to a G2P1D1 mother via LSCS in view of non-progression of labor with birth weight of 2.8 kgs presented in our hospital with subcutaneous abscess diffusely present on the left side of the scalp & face. Informant was father with good reliability. All relevant investigations sent & IV antibiotics like meropenem & vancomycin started. Incision & drainage done by pediatric surgeon & 100 ml pus removed. IV antibiotics given for 14 days. In summary, though upper & lower limb skin abscesses are more common, but one should not miss the facial subcutaneous abscess for their prompt and effective management.

Key Words: Neonate, subcutaneous abscess, SSTIs, *Staphylococcus aureus*, blood culture, antibiotic

Introduction:

Skin and soft-tissue infections (SSTIs) are a relatively common diagnosis in both the pediatric and adult populations and include abscesses and cellulitis. The abscess is a focal contained, purulent infection with the clearly defined “cavity” and surrounding inflammation involving the deep subcutaneous tissues. Cellulitis is an infection of skin, without an organized cavity, presenting with erythema, warmth, induration, and tenderness.[1] There have been recent rise in the incidence of the SSTIs, with up to 95% of this increase attributed to abscesses and cellulitis, with the largest change occurring in the paediatric (<18 years) population.[2] In addition to an overall increase in the SSTIs, there has been a concomitant rise in the incidence of community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA).[3] The increase in cases has led to an

increased variation in practice in the diagnosis and management of subcutaneous abscesses, particularly in the pediatric population. The routine use of the laboratory testing, diagnostic imaging, wound cultures, and antibiotic management are common areas of debate.

Concurrent with the emergence of the Methicillin-resistant *Staphylococcus aureus* (MRSA) as a community pathogen, the incidence of skin and soft tissue infections has rapidly increased over the past decade.[3,4]

Since many skin and soft tissue infections, in particular skin abscesses, require urgent evaluation for potential surgical management and antibiotic therapy emergency departments (EDs) receive a large number of visits for these infections, with children comprising a significant proportion of patients.[5,6]

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Since ED care for pediatric patients is often provided in varied settings, ranging from the community setting to academic Paediatric EDs, the management of pediatric skin abscesses has the potential to vary greatly based on the site of emergency care.[7,8]

Cellulitis and abscess are among the most common skin and soft tissue infections. Cellulitis is defined as an area of skin erythema, edema and warmth. An Abscess is defined as a collection of pus within the dermis or subcutaneous space. Skin and the soft tissue infection in children account for a large portion of Emergency Center visits annually as well as inpatient admissions. While the *Staphylococcus aureus* is the most common cause of suppurative skin and soft tissue infections in otherwise healthy children.

As upper & lower limb skin abscess are more common, we here report facial abscess in neonate which was diffuse & successfully treated.

Case report:

A 20 days old male full-term baby born to a G2P1D1 mother via lower segment cesarean section in view of non progression of labor with birth weight of 2.8 kgs presented in our hospital with subcutaneous abscess diffusely present on the left side of the scalp & face.(Figure 1 & 2) Informant was father with good reliability. Patient presented with complaints of fever since 2 days and distension of abdomen since 2 days and Swelling over the scalp since birth.

Age of mother at marriage was 18 years and age at conception was 20 years. Pregnancy was confirmed by spontaneous conception. There was history of vomiting in first trimester and no history of fever with rash, no history of teratogenic drug and no history of exposure to radiation. There were 10 ANC visits done. In the third trimester there was no history of decreased fetal movements. No history of complications like hemorrhage, membrane rupture, sepsis, eclampsia, severe anaemia.

The delivery was conducted by a doctor with vertex presentation, the baby cried immediately after birth with birth weight of 2.8 kgs. No history of cord complications. Breast feeding was started within 2 hours. Term baby 40 weeks gestation appropriate for

gestational age birth weight of 2.8 kgs came with fever and distention of abdomen from 12th day of life and also inconsolable cry. Clinical findings showed raised total bilirubin and edematous swellings over the scalp & face. There was history of NICU stay from day 8 of life to current date. There was history of jaundice. No history of convulsions and vomiting. Temperature- 102⁰F, Heart rate- 146 bpm and Respiratory rate- 50 per minutes. Icterus was present. No cyanosis, no pallor.

Birth weight- 2.8kgs. length- 53 cms. Head circumference-33cm. chest circumference-31cms.

The size and shape of head is normal with open anterior and posterior fontanelle. Swelling was present on the scalp especially in the left half and posterior region. Lacerated wound was present approximately 1cm x 0.2 cm from which pus (yellowish brown color) was oozing out. Eyes are normal, ears are not low seated. Nose, mouth, philtrum, oral cavity, hip, limbs, spine are normal. No swelling noted over neck.

On examining the respiratory system, symmetrical chest wall with symmetrical chest wall movements is present, it is abdomino-thoracic. Air entry is bilaterally equal and no abnormal sounds heard. On examining cardiovascular system, S1, S2 heard with no murmur and no pericardial bulge. On examining per abdomen, abdomen is scaphoid shaped, soft and nontender, with distention of abdomen present and no organomegaly. On examination of central nervous system, baby was active and awake with good cry tone and activity. On examination of the cranial nerves, All the cranial nerves are normal. On testing neonatal reflexes, rooting was present, moros was present and was complete and symmetrical, sucking was present, plantar grasp was present, asymmetric tonic neck reflex was present.

All relevant investigations sent & IV antibiotics like meropenem & vancomycin started. Incision & drainage done by pediatric surgeon & 100 ml pus removed. IV antibiotics given for 14 days. Regular dressing done & patient discharged on day 16 of admission.



Figure No. 1: subcutaneous abscess diffusely present on the left side of the scalp



Figure No. 2: subcutaneous abscess diffusely present on the left side of the face

Discussion:

An abscess is a localized collection of pus resulting from the disintegration of tissue in the dermis and deeper skin tissues. The overlying layer of skin, the epidermis is the normal layer, but the dermis contains inflammatory cells and broken down tissue. In contrast erysipelas is an infection of upper dermis, and the cellulitis is an inflammation and infection loose connective tissue limited to the dermis and spares the epidermis.[9] Abscesses are thought to begin as a superficial cellulitis that leads to cell liquefaction and the debris collection in the dermis with the subsequent loculation leading to abscess formation. SSTI including abscesses are a common presentation in the ED, accounting for more than 200,000 ED visits annually and about 2% of all ED visits. The incidence of the paediatric abscess has been rising considerably in the past 20 years. It was found that the SSTIs, especially in the children,

mostly are caused by *Staphylococcus aureus* or *Streptococcus pyogenes*, account for more than 90% of cases.[10] *Staphylococcus* and *Streptococcus* are also the primary cause of cutaneous abscesses, but enteric bacteria and anaerobic and Gram-negative organisms aren't uncommon depending on the anatomic location. The incidence of methicillin-resistant *Staphylococcus aureus* is increasing with the increase of the incidence of the cutaneous abscess. Incidence of the community-acquired MRSA (CA-MRSA) varies by location, race, and age, and even in the patients with no apparent risk factor it is the most common offending agent in many communities

At times, the presence of abscess be difficult to discern from the cellulitis on the clinical examination alone and cellulitis and the abscess are not mutually exclusive. On clinical examination, the presence of the fluctuance, which signifies purulent material within a cavity, can correspond with the presence of an abscess. However, fluctuance is not always easy to determine, especially in cases with extensive cellulitis and skin induration. The use of diagnostic ultrasound has become more prevalent, especially with the increasing popularity of point-of-care ultrasound (POCUS). POCUS has been shown to improve the diagnostic accuracy in children with SSTIs and is beneficial in cases of clinical uncertainty. [11]

The gold standard treatment for subcutaneous abscesses remains incision and drainage. The use of the antibiotics for the SSTIs after drainage is an area of great debate and variance. The Infectious Disease Society of America (IDSA) suggests to make use of antibiotics after incision and drainage only in the presence of systemic signs of infection. In the paediatric population, several studies have shown that there is no significant difference between adjunct antibiotics post-I&D and I&D alone. Obtaining the blood cultures has become a common practice in the paediatric patients presenting with SSTIs. However, while more than 90% of the SSTI patients undergo laboratory investigations, including blood cultures, less than 1% of patients yields positive blood culture with uncomplicated SSTIs .

Further more, the IDSA guidelines don't specify the need for blood cultures in healthy, immunocompetent patients, but do suggest blood cultures in neutropenic and immunocompromised patient. [12]

Conclusion:

Abscesses are a very common presentation in the paediatric ED. Methicillin resistant staphylococcus aureus is the most common isolate of these abscesses, regardless of risk factors. History and physical examination combined with USG should be used to diagnose abscesses. Incision and drainage are the ultimate treatment with careful attention to pain and anxiety control during the procedure. Prompt diagnosis with appropriate management can prevent serious effects of facial abscess.

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