Cervical Necrotizing Fasciitis in Children under two years of age

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ABSTRACT

Necrotizing fasciitis is a rare clinical head and neck entity that is predominantly an adult disorder. It has been described in the pediatric literature for neonates. We report 2 cases of cervical necrotizing fasciitis in toddlers and to discuss the current management strategies for the diagnosis and treatment of this life-threatening infection in this age group.

Case Report #1

A 19-month-old male, ex-23-week premature infant underwent an expansion laryngotraceoceleplasty to treat a grade III subglottic stenosis. His postoperative course was notable for granulation tissue formation, requiring laser excision. On post-operative day #4 following this procedure, he developed gram-positive septic bacteremia and a new, discrete ecchymotic lesion appeared on his right posterior neck. Over a period of hours the site developed local edema, a deep violaceous hue, and central necrosis. Computed tomography scan showed fluid between fascial planes of the posterior paraspinal muscles, but there was no formed abscess or gas collection. Bedside biopsies were consistent with dermal necrosis. (See IMAGE #1A) He was emergently taken to the operating room for radical debridement of skin, soft tissue, lymph nodes and deep muscle to viable margins. (See IMAGE #1B) Pathology report confirmed a necrotic process in the Level V specimen, consistent with necrotizing fasciitis and myositis. (See IMAGE #1C) Serial bedside debridelements were performed as necessary, with twice daily dressing changes.

Case Report #2

A 15-month-old female was admitted after presenting to the emergency department with 1 week of rhinorrhea and cough. She had a fever of 38.5°C and left peritonsillar and neck swelling with a leukocyte count of 35,000 /mm3. Computed tomography scan showed a large heterogeneous collection with an indistinct enhancing rim and multiple gas pockets medial to the left mandibular ramus with extension into the left submandibular, parapharyngeal and masticator spaces. (See IMAGE #2A and #2B) The patient was taken urgently to the operating room for examination under anesthesia and left neck exploration. There was a 1 x 1 cm hole along the lingual surface of the mandible and posterior floor of mouth just medial and inferior to the left retromolar trigone. Soft tissue necrosis communicated oral cavity to the neck, prompting a transcervical incision and drainage of left parapharyngeal space and masticator spaces abscesses. Aggressive debridement of left parapharyngeal space necrotic tissue, and selective neck dissection of Level Ib. The necrosis extended to the skull base. Specimen pathology confirmed fibroadipose tissue with hemorrhage, acute inflammation, and extensive necrosis. The wound site was thoroughly packed with betadine-soaked strip gauze, which was serially removed over 3 days.

DISCUSSION

The treatment of pediatric necrotizing fasciitis is generally extrapolated from the strategies of adult management. Cervical necrotizing fasciitis in the under-twenty year-old population has not been previously described.

Classically necrotizing fasciitis presents as a discrete skin lesion that develops initially as erythematous discoloration, transitioning to gray, green, or purple. Eventual vesicle or bulla formation is associated with necrosis [1]. Case #1 had classic skin findings, developing in a period of hours.

Necrotizing fasciitis in the pharynx has been described as presenting with inability to manage secretions, irritability or lethargy, throat pain, dysphagia, odynophagia, muffled voice, torticollis, dehydration, fever [2]. Case #2 can be accurately described by this presentation.

The mainstay of treatment is broad-spectrum intravenous antibiotic coverage and surgical debridement. Early and aggressive surgical debridement results in improved survival [3]. Intraoperatively the goal is to drain affected fascial planes and to debride necrotic tissue to the end point of bleeding/viable tissue at all margins. The adult literature concludes that the drastic surgical intervention required for survival often leaves patients with pronounced disfigurement [4]. The pediatric concept is the same regardless of the patient being a small child with high risk of a disfiguring defect. Scheduled return to the operating room for reinspection and further debridement is common.

Adults with diabetes, alcoholism, and atherosclerotic disease are at higher risk for necrotizing fasciitis. The immune system of our patient from Case #1 had been iatrogenically suppressed by repetitive courses of stress dose corticosteroids in his setting of airway edema, while our Case #2 had been previously healthy.

Defect reconstruction and definitive airway management may be addressed secondarily to infection resolution.

CONCLUSIONS

Cervical necrotizing fasciitis is a rare infectious process in young children.

Immunocompromised children may be at higher risk for developing fulminant infections. Optimal management requires a combination of medical and surgical interventions. An aggressive surgical approach may be required to adequately clear the infection.

REFERENCES