ABSTRACT

Educational Objective: Describe the management of spontaneous necrotizing fasciitis in the head & neck, with special emphasis on clinical signs and symptoms with prognostic implications

Objectives: Describe the clinical and radiologic prognostic signs in early and late-presentation necrotizing fasciitis in the head & neck in this subset of patients without antecedent surgery or trauma.

Study Design: Case report and literature review

Methods: An example of late-presentation spontaneous necrotizing fasciitis in the neck is discussed. An extensive literature review is provided to define clinical and radiologic signs and symptoms with prognostic significance.

Results: Late-presenting necrotizing fasciitis has a nearly uniformly dismal prognosis, and much of the literature emphasizes early recognition for best outcomes. Differentiating necrotizing from non-necrotizing neck infections is extremely challenging, with laboratory or clinical signs having little utility in this regard. The Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC), and classic clinical sign of subcutaneous emphysema, have not been shown to be effective. The latter is often a late finding and may be absent due to tissue edema. Likewise, patients without a history of trauma or antecedent surgery present yet another challenge, with dental origin most often postulated in these patients.

Conclusions: Existing standardized tools for risk assessment in necrotizing fasciitis appear to be unreliable in the head & neck, and further investigation is warranted. If any suspicion exists, early biopsy should be strongly considered.

REFERENCES


DISCUSSION

A thorough literature review yielded 186 cases of cervicofacial necrotizing fasciitis in the English-language literature since 1966, and of these, only one prior mortality in an immunocompetent patient has been reported. The Centers for Disease Control and Prevention estimates overall mortality rate among all patients at 20-30%, with significantly higher risk of death extant in those with compromised immune systems. While necrotizing fasciitis itself is, thankfully, a relatively rare entity, involvement of the head and neck is even more uncommon; these infections more commonly present in the perineum (Fournier’s gangrene), trunk, and extremities. In studying the microbiology of necrotizing fasciitis, Giuliano, et al., highlighted several important features likely contributing to the high mortality rate. First, the infections are largely polymicrobial. Two overall patterns were encountered: Type I consists of at least one anaerobe combined with at least one facultative anaerobe, and these occurred only in primary neck infection, as in the current patient. Type II consists of group A Streptococcus alone, or in combination with Staphylococcus aureus. In both types, common causative organisms presented with an unusually aggressive clinical course, the cause of which remains elusive. These findings underscore the crucial clinical dilemma: If early recognition and aggressive treatment are the only chance for successful treatment of necrotizing fasciitis, yet there are no specific “warning signs” or causative organisms, how best to identify which cellulitis-type infections from common causative agents will progress to such devastating consequences? Clearly, immunosuppression poses an increased risk of poor outcomes, as it does in any infection, also an association with non-steroidal anti-inflammatory medications (NSAIDs) has been proposed, though supportive evidence is lacking. Other attempts at examining clinical parameters such as WBC, blood urea nitrogen (BUN), or serum sodium levels have led to the creation of the Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) score, which has a reported positive predictive value as high as 92% and negative predictive value as high as 96% in non-craniofacial necrotizing fasciitis. Unfortunately, when the LRINEC was employed in a validation study of craniofacial necrotizing fasciitis, the results were not as encouraging, with PPV ~ 25% and NPV ~ 85%. The exact reason for this discrepancy remains a matter of investigation.

In the absence of any definitive diagnostic test prior to the appearance of subcutaneous emphysema, the authors propose rapidly progressive craniofacial infections be treated as potential necrotizing fasciitis, and be promptly surgically explored. It is also paramount to note that, despite encouraging results published in the literature for treatment of this disease, it remains a life-threatening condition, and dismal outcomes despite all appropriate treatment are a very real possibility.