Actinomycosis of the Cervical Vertebrae in a Pediatric Patient

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INTRODUCTION

Actinomycosis species are gram-positive, filamentous, and non-motile anaerobic bacteria often found in the normal flora of the oral cavity and vaginal tract. These bacteria are occasionally responsible for indolent infections causing chronic disease with abscess formation and draining sinususes that may express sulfur granules. Actinomycosis of the cervicofacial region is a relatively rare condition, however, it is the most common anatomical location for Actinomycosis spp. infection, accounting for approximately 50-65 percent of cases [1,2]. Adults with dental caries, gingivitis or gingival trauma are at the greatest risk for infection, as well as, the immunocompromised and patients with recent dental procedures. Clinical presentation includes “wooden” fibrosis, indurated, cutaneous and soft tissue swelling with or without abscess formation and rarely direct bony invasion. The indolent course and soft-tissue indurated lesions allow this entity to be frequently confused with neoplasms, especially in the absence of suppuration. Here we present a pediatric patient with actinomycosis spread to the cervical vertebrae, which is a rare life-threatening condition that can mimic a neoplastic process.

RESULTS

We report an immunocompetent, afebrile, 8-year-old male who presented to an outpatient clinic with slowly-progressive neck pain for one month with no neurological deficits and denying a recent history of trauma or dental procedures. Cervical CT and MRI revealed an ulceration of the posterior oropharyngeal mucosa with a soft tissue defect extending to and involving the C1-C2 vertebrae. In addition, radiography showed destruction of the anterior arch and lateral masses of C1 and adjacent bone marrow edema, which were concerning for a pathologic fracture from a neoplastic process. Differential diagnostic considerations included an intraosseous lesion, such as a primary Ewing’s sarcoma or bone metastasis, growing secondarily into the posterior nasopharyngeal soft tissues. The patient underwent laryngoscopy which found a deep ulcer surrounded by granulation tissue involving the posterior oropharyngeal wall, extending into the lower part of the nasopharynx. Subsequent debridement and biopsies of the ulcer and the endodontic process of the cervical spine showed severe acute osteomyelitis with osteonecrosis, remodeling, fragments of granulation tissue and fibrosis (FIGURES 1-2). In addition to acute inflammation, intraosseous filamentous organisms, morphologically consistent with Actinomyces species, were identified and supported by a positive Gomori methamine silver (GMS) stain and a negative acid-fast bacilli (AFB) stain (FIGURE 3). Gram stain and tissue culture was non-contributory and did not grow organisms. At a two month follow up, the boy showed great response to long term antibiotics treatment and was pain-free with improved range of motion.

DISCUSSION

Cervicofacial involvement is a very uncommon infection in the United States, with a large domestic study in showing incidence to be about 1 per 300,000 persons [3]. The most commonly involved site is the angle of the jaw or the submandibular region, followed by the cheek, the submental space, the masticator space, and the temporomandibular joint [4].

REFERENCES