CERVICAL ACTINOMYCOYSIS SECONDARY TO A CONGENITAL PYRIFORM APEX SINUS TRACT: A review of the literature and description of management

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ABSTRACT

OBJECTIVES
- Provide a description of the pathogenesis of the pyriform apex sinus tract
- Discuss the treatment of cervical actinomycosis
- Review the literature with respect to the pyriform apex sinus tract

METHODS
- Literature review

RESULTS
- A 4-year-old child presented with a left neck mass. Initial presentation included a pyriform apex sinus tract
- Blood and tissue cultures were positive for Actinomyces species

CONCLUSIONS
- Cervical actinomycosis should be considered in patients presenting with a neck mass
- Pyriform apex sinus tract and cervical actinomycosis must be considered when selecting antibiotic therapy

INTRODUCTION

A neck mass in a pediatric patient is a common finding. The differential diagnosis includes a wide variety of inflammatory/infectious, and neoplastic lesions. When an infectious etiology is found to be the cause there are several organisms that must be considered when selecting antibiotic therapy, including Staphylococcus, Streptococcus, Neisseria, Histoplasma, Aspergillus, Actinomyces species, Mycobacterium, and atypical mycobacteria. When organisms other than those cultured are performed then alternative treatments and diagnoses must be considered.

CASE PRESENTATION

A 4-year-old child was noted to have a left neck mass. The mass was noted to be present for over one year and had been increasing in size. The child had no fever, no pain, and no respiratory symptoms. The mass was noted to become symptomatic with coughing and sneezing. The child was otherwise asymptomatic.

The child was seen by an otolaryngologist who noted a left pyriform sinus tract. Blood and tissue cultures were positive for Actinomyces species. The child was started on oral antibiotics consisting of amoxicillin (60 mg/kg/day) and clavulanate (22.5 mg/kg/day) for 6 weeks followed by amoxicillin (60 mg/kg/day) for 5 weeks. The patient had complete resolution of her neck mass and is being followed for signs of recurrence now one year later.

DISCUSSION

Simo and colleagues in 1998 retrospectively reviewed 65 children treated at their facility over a 5-year period for neck abscesses. The children all required incision and drainage and had culture results. The most common organisms cultured were Staphylococcus aureus in 48% of cases, followed by Streptococcus pyogenes in 20%, mixed flora in 8%, and atypical mycobacteria in 8% (1). Further supporting this work was a study by Frassocio and colleagues in 2007. They retrospectively reviewed 64 children under the care of otolaryngologists at their facility for a 4-year period. The most common organism cultured was Staphylococcus aureus in 47% of cases. Streptococcus pyogenes in 45% of cases, and atypical mycobacteria in 4% of cases (2). When other organisms were noted those above mentioned were cultured then the otolaryngologist must consider alternative explanations. In this case, a pyriform sinus tract explained the presence of atypical flora with Actinomyces species.

The classic, segmental embolism has been used to describe pyriform apex sinus tracts as they are seen in 4% of the population depending on their observed course in the neck. However, there are no reports in the literature that support operative findings consistent with this explanation (3). Another explanation is well described by Jeme, et al (4) and is more consistent with what is observed clinically. The pyriform is a thin arch derived and descends to its inferior location along with the inferior parathyroid glands and the pyriform sinus. A resulting thyrompharyngeal duct follows the migration of the thyroglossal duct. James, et al (5) propose that much like thyrompharyngeal duct persistence, these pyriform sinus tracts represent a failure of obliteration of this thyrompharyngeal duct. This is more in line with what has been observed with open neck exploration.

Clinical presentation is seen at any age, though this is generally a pediatric problem. They are overwhelmingly on the left side and present as neck swelling, abscess formations, or thyrotoxicosis (5). There is rarely a true opening to the skin unless prior drainage procedures have created anatomic defects. Finally, many of these patients have had multiple PAXE for neck abscesses. Work up can involve thin barium swallow, ultrasound, or CT/MRI. Direct laryngoscopy is confirmatory.

The classic treatment strategy is open neck excision of the entire tract and thyrotoxicosis (6). This can be made more difficult depending on infections or drainage procedures that lead to fibrosis, making tissue planes difficult to define. There are a variety of ways that have been identified to completely excise the tract with the open surgical approach. An alternative to the classical open approach is endoscopic obliteration, which involves identification of the opening in the pyriform and obliteration with various methods. We use monopolar electrosurgery combined with suture closure, as described by Chen, et al (5).

REFERENCES