Received: 14.07.2014 / **Accepted:** 16.12.2014
DOI: 10.5137/1019-5149.JTN.12143-14.3

Case Report

Gynecomastia and Hyperprolactinemia Secondary to Advanced Allergic Fungal Rhinosinusitis in a Pediatric Patient

Çocuk Hastada İlerlemiş Alerjik Fungal Rinosinüzite Sekonder Jinekomasti ve Hiperprolaktinemi

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ABSTRACT

Hyperprolactinemia is a rare entity in the pediatric population. The most common causes of hyperprolactinemia include drug use, hypothyroidism and renal insufficiency, though rarely a pituitary or sellar mass is discovered. We present an immunocompetent pediatric patient who presented with gynecomastia and was found to have hyperprolactinemia. Imaging showed a sphenoid mass and referral was made for a pituitary tumor. The mass was not a pituitary tumor and he was formally diagnosed with allergic fungal sinusitis and treated surgically. There are no previous reports of allergic fungal rhinosinusitis causing pituitary dysfunction in a pediatric patient. We also present a brief review and discussion of the treatment of allergic fungal sinusitis.

KEYWORDS: Pediatric, Pituitary, Hyperprolactinemia, Gynecomastia, Rhinosinusitis, Fungus

ÖZ

Hiperprolaktinemi pediatrik popülasyonda oldukça nadir görülen bir tablodur. Hiperprolaktineminin en sık sebepleri ilaç kullanımı, hipotiroidizm ve renal yetmezliktir. Bunlarda nadiren hipozer veya sellar kitle tesbit edilir. Makalede jinekomasti ile başvuran ve hiperprolaktinemi tesbit edilen immünokompetan bir çocuk hasta sunuldu. Görüntüleme yöntemleri sfenoid sinüste bir kitleyi gösterdi ve hasta hipofiz tümörü tanısı konularak bize gönderildi. Ancak kitle hipofiz tümörü değildi ve alerjik fungal sinüzit tanısı konularak cerrahi yolla tedavi edildi. Daha önce çocuk hastada hipofizer disfonksiyona neden olan allerjik fungal rinosinüzit rapor edilmemiştir. Biz ayrıca kısa bir literatür taraması yaptık ve alerjik fungal sinüzitin tedavisini tartıştık.

ANAHTAR SÖZCÜKLER: Pediatrik, Hipofiz, Hiperprolaktinemi, Jinekomasti, Rinosinüzit, Fungus

INTRODUCTION

Hyperprolactinemia is a rare entity in the pediatric population (5). Workup should involve laboratory and imaging studies in addition to a thorough history and physical examination. The most common causes of hyperprolactinemia include drug use, hypothyroidism and renal insufficiency, though rarely a pituitary or sellar mass is discovered (6). We present a case of sphenoid fungal disease causing hyperprolactinemia in a pediatric, immunocompetent patient who initially presented with gynecomastia.

CASE REPORT

History and Examination

This 17-year-old, right hand dominant male who presented to his primary care provider with a small non-tender lump in his right breast. The pediatrician was concerned that this represented gynecomastia and further work-up including a full pituitary profile was obtained. Laboratory evaluation was remarkable for mild hyperprolactinemia (prolactin level 35 ng/ml) and a cranial magnetic resonance imaging (MRI) was performed. Imaging demonstrated a heterogeneously enhancing mass expanding the sphenoid sinus and thinning the sella with extension to the clivus (Figure 1). Signal drop out was present on T2 weighted images. On sagittal views, there was upward deviation of the optic chiasm with a normal appearing gland visible posterior to the mass (Figure 2). The patient was diagnosed with a pituitary tumor and was referred for neurosurgical evaluation. The patient denied any headache, nausea, vomiting, hot/cold intolerance, changes to his hair/skin/nails, weight changes, or fatigue. His past medical history was significant only for asthma and his only medication was albuterol as needed for wheezing. On physical examination the patient was neurologically intact and his visual fields were full to confrontation. A computed tomography (CT) of the sinuses was obtained and this showed an expanded sphenoid sinus as well as erosion of the skull base.

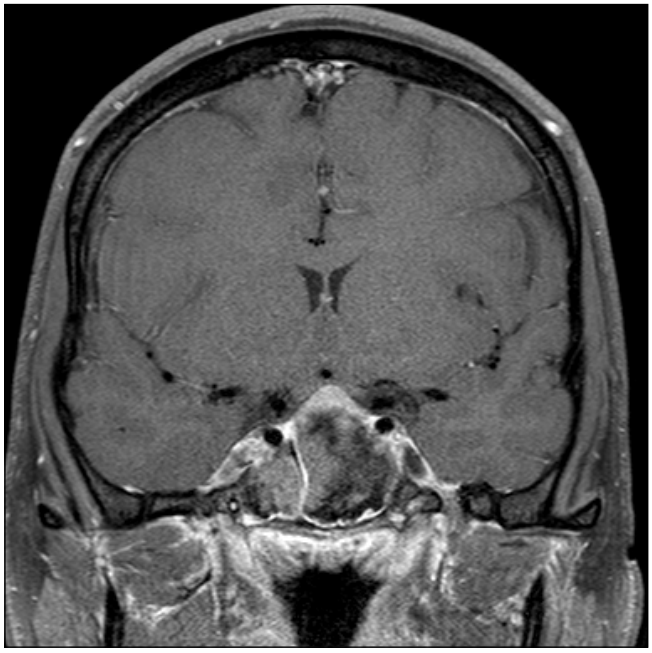

Figure 1: MRI Brain, T1 with contrast, coronal view demonstrates large sellar mass compressing the optic chiasm.

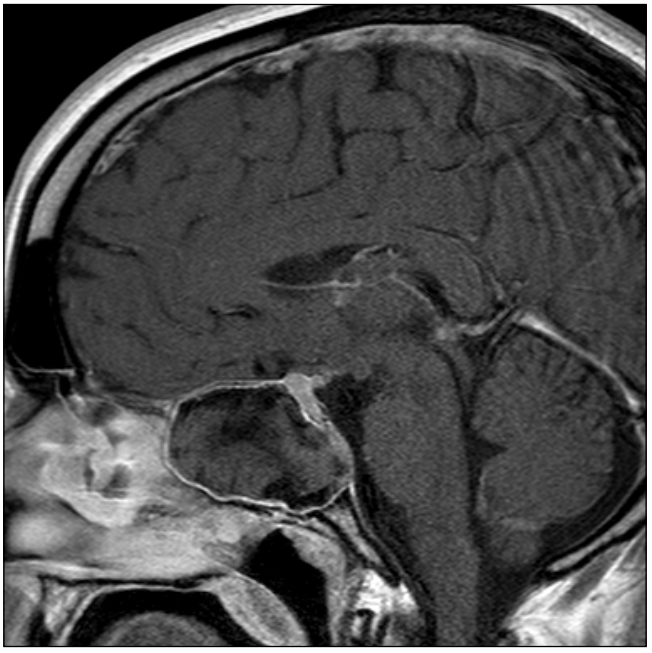

Figure 2: MRI Brain, T1 with contrast, sagittal view demonstrates large mass in the sphenoid sinus and a normal appearing pituitary gland posterior to the mass.

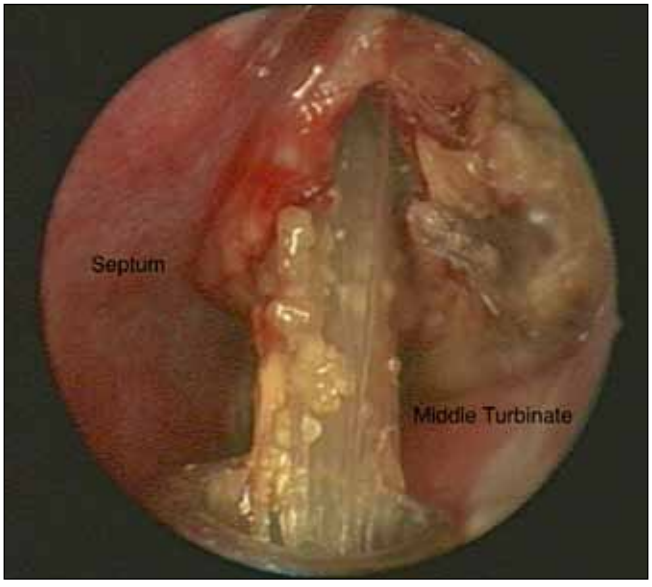

Figure 3: Intraoperative photograph in the left nares demonstrating the mucinous exudate arising from the sphenoid sinus.

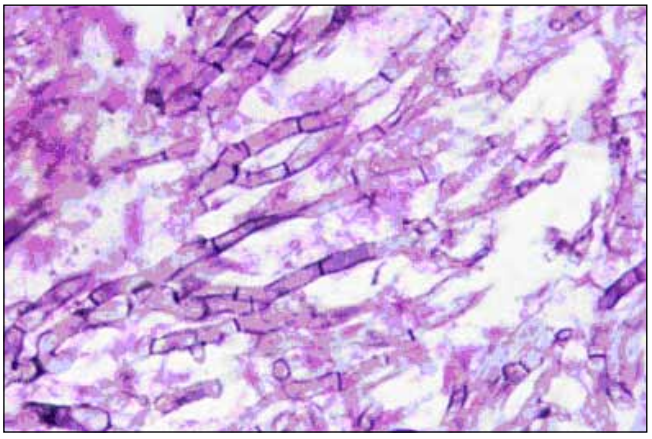

Figure 4: Silver stain pathologic specimen demonstrating the branching, septated hyphae that are representative of Aspergillus.

Operative and Postoperative Course

The case was discussed with a rhinologist who agreed with the diagnosis of allergic fungal rhinosinusitis (AFRS). The patient was taken to the operating room for endoscopic surgery to remove the fungal debris (Figure 3). Extensive skull base erosion was noted intraoperatively. Fungal mucin was adherent to the surrounding walls but was dissected free without violating the dura. The patient did well post-operatively and was discharged home the following day on a short course of clindamycin and a prednisone taper. Pathological evaluation revealed branching septated hyphae consistent with *Aspergillus*, although the fungus could not be isolated on culture (Figure 4). The patient was seen back in Ear-Nose-Throat (ENT) clinic two weeks following surgery and was doing well. He was taken off oral steroids and antibiotics and continued on mometasone nasal rinses.

DISCUSSION

Hyperprolactinemia is a rare entity in the pediatric population. To our knowledge, there are no reports of pituitary dysfunction either from stalk effect or from intrinsic dysfunction caused by fungal disease of the sinuses in the pediatric population, although there have been reports in the adult literature (2, 10). AFRS is a relatively common entity and has been

reported to present with neurologic symptoms and signs due to cavernous sinus thrombosis (3), but this is the first report of this process presenting with pituitary dysfunction in an immunocompetent child.

First reported in 1976, (14) AFRS is characterized by accumulation of eosinophilic mucin due to a hypersensitivity response to fungal antigens. AFRS accounts for approximately 7-12% of cases of chronic rhinosinusitis (15). It can result in significant erosion of the skull base and orbital walls. Interestingly, there is an increased prevalence in the Mississippi basin and southwestern states. Common presenting symptoms are painless nasal congestion, rhinorrhea and nasal casts. Based on the work of Bent and Kuhn, major criteria for diagnosis include history of Type I hypersensitivity, nasal polyposis, eosinophilic mucin without invasion and a positive fungal stain of sinus contents at surgery (1, 15). Minor criteria that support but are not required for the diagnosis include concomitant asthma, unilaterality, bony erosion, presence of Charcot-Leyden crystals, serum eosinophilia and positive fungal cultures from sinus contents (8). Physical examination often reveals nasal polyposis, though occasionally the presentation may be more severe with proptosis, telecanthus or gross facial dysmorphia. Laboratory evaluation often shows elevated total immunoglobulin E (IgE) levels > 1000U/mL.

CT will often show unilateral or asymmetric involvement of the sinuses with heterogeneous hyperdensity throughout and asymmetric disease is more common in children than in adults (15). Enhancement in the para-nasal sinuses is common and noninvasive expansion of fungal mucin with bony destruction of the orbit or skull base may be seen if the disease is advanced (9). Approximately 50% of children may present with orbital erosion and proptosis (4). Orbital erosion is more commonly seen than skull base erosion (12). MRI usually demonstrates T1 hypointensity and T2 central signal void due to high protein concentration in allergic mucin.

The mucinous exudate is very viscous and resembles peanut butter or axle grease (13). Histology of sinus contents often reveals mucin with a chondroid appearance, Charcot-Leyden crystals, and an inflammatory infiltrate of eosinophils, lymphocytes and plasma cells. Sinus mucosa is typically hypertrophic and hyperplastic without evidence of necrosis, giant cells, granulomas or invasion into surrounding structures.

Options for treatment of AFRS include a combination of surgical removal of the gross fungal burden within the sinuses, allergen avoidance, allergy control with corticosteroid nasal sprays and antihistamines, oral corticosteroids, and immunotherapy. Of note, invasive fungal disease is rarely seen in immunocompetent patients. Risks factors for development of invasive disease are congenital immunologic deficiency, uncontrolled diabetes mellitus, hematologic malignancy and chronic immunosuppression.

Surgical treatment is comprised of endoscopic sinus surgical approaches that allow complete removal of all mucin and antigenic debris and restoration of normal drainage patterns. Though surgical debridement, nasal or systemic corticosteroids and anti-fungal agents have historically been a mainstay of treatment, there is a growing body of literature describing the use of immunotherapy in AFRS. Immunotherapy involves exposure of the patient to various antigens in order to decrease the hypersensitivity reaction that causes nasal polyposis. Antigens are patient-specific and are chosen on the basis of a skin test for sensitivity. Several case series have shown decreased recurrence of symptoms and need for systemic steroids in patients treated with immunotherapy (7, 11).

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