Case Report

Non-Specific Orbital Inflammation Mimicking a Subperiosteal Abscess: A Case Report

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Medial wall orbital subperiosteal abscess is an entity seen in the context of infection in the ethmoid sinuses [1]. One case of an orbital metastasis mimicking a subperiosteal abscess has been reported previously, but no literature exists on non-specific orbital inflammation that presents with subperiosteal disease [2]. We report a case of a patient with non-specific orbital inflammation, who presented with a lesion on imaging that had an appearance of a subperiosteal abscess.

CASE REPORT

A 25 year old woman was referred to our centre with the complaint of a two day history of diplopia and decreased visual acuity in the left eye. On history, there was no preceding illness, and no constitutional symptoms. She was healthy, and not taking any medications.

On examination, her vitals were stable, and she was a febrile. Ophthalmologic examination revealed visual acuity of 6/6 in the right eye, and 6/9 in the left eye, which did not improve with a pinhole; intraocular pressure, pupil exam, and colour vision testing were within normal limits. A mild limitation in abduction of the left eye was noted. There was no proptosis or lid retraction. No lid or lacrimal gland swelling was present, and anterior segment was normal. Fundus examination showed a normal disc, macula and vessels in the right eye. In the left eye, optic disc was elevated superiorly, with no disc haemorrhages. Laboratory testing revealed a normal white blood cell count, with no neutrophilia. TSH and T4 levels were normal.

Computed tomography scan of the head without contrast showed an abnormal focus of increased soft tissue density along the medial wall of the left orbital apex, with a focal area of missing bone of the lamina papyracea adjacent to the lesion that could represent disease involvement. Left medial rectus muscle was slightly enlarged. Paranasal sinuses and mastoid air cells were clear (Figure 1a).

Magnetic resonance imaging of the orbits with gadolinium enhancement was performed to better assess the lesion. Imaging revealed an enhancing lesion along the left lamina papyracea, appearing hyperintense on both T1- and T2-weighted images (Figure 1b-d). There was restricted diffusion on the diffusion weighted imaging sequence, which supports a diagnosis of a subperiosteal abscess and not a simple effusion or fluid collection (Figure 1e). Homogeneous thickening of the medial and inferior rectus muscles was noted. The orbital fat near the orbital apex showed T2 hyperintensity, suggestive of edema. On imaging, this appearance was most in keeping with a presumed subperiosteal abscess of the lamina papyracea. No evidence of sinusitis was noted on the study.

Patient was admitted to hospital and treated with intravenous cefazolin, 1 gram every 8 hours, and metronidazole, 500 mg twice a day, for three days. Intravenous dexamethasone 2 mg every 8 hours was also added to the treatment regimen. Following three days of intravenous antibiotics and corticosteroids, patient was switched to oral prednisone at 80 mg daily, with a taper over the following three weeks. A five day course of oral cefazolin and metronidazole was prescribed on discharge.

Keywords
- Subperiosteal abscess
- Magnetic resonance
- Imaging
- Non-specific orbital inflammation
- Orbital pseudotumour

Abstract

Case Report: A case of a 25 year old female is described. Patient presented with diplopia, and an orbital subperiosteal abscess on imaging. Sinus disease was absent. She was treated with intravenous antibiotics and corticosteroids, with complete resolution of the lesion.

Comment: To our knowledge, no previous cases of non-specific orbital inflammation mimicking subperiosteal abscess have been reported. If an orbital subperiosteal abscess is identified in the setting of no sinus disease, one should consider treatment with corticosteroids and antibiotics concurrently to improve outcomes.
In follow up, eight months after admission, our patient's visual acuity recovered to 6/6 bilaterally. A follow-up magnetic resonance imaging scan of the orbits was performed and showed that the left medial rectus muscle had returned to its normal size, and the lesion involving the lamina papyracea had resolved completely (Figure 1g-i).

**COMMENT**

We describe a case with a clinical presentation of non-specific orbital inflammation, with retrobulbar pain, diplopia and enlargement of medial and inferior rectus muscles. On imaging, our patient had a presumed medial orbital wall subperiosteal abscess, with clear sinuses. To our knowledge, no previous cases of non-specific orbital inflammation mimicking a subperiosteal abscess have been reported. If an orbital subperiosteal abscess is identified in the setting of no sinus disease, one should consider treatment with corticosteroids and antibiotics concurrently.

**REFERENCES**