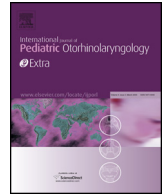




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## Case Report

# Acute suppurative parotitis associated with orbital and vascular complications: A case report<sup>☆</sup>

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## ABSTRACT

Complications arising from acute suppurative parotitis (ASP) are rare but can be morbid. We report the case of a young female who presented with facial swelling, trismus and diplopia. She was found to have ASP complicated by orbital abscess, cavernous sinus thrombosis, carotid arteritis, and cerebral infarction. Cultures from parotid abscess needle aspiration, orbitotomy and blood sampling returned fusobacterium necrophorum. After a lengthy course of antibiotics and anticoagulation, the patient recovered to near-baseline status. To the best of our knowledge, this is the first case of ASP with such extensive orbital and vascular complications, and highlights the importance of awareness for such events.

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## 1. Introduction

Acute suppurative parotitis (ASP) is a rare entity most commonly occurring in debilitated, elderly patients or children under the age of two [1]. It often presents as sudden onset of induration and erythema over the parotid area in the setting of a high fever and chills. Diagnosis can be made from the expression of purulence from Stenson's duct. Radiographic confirmation of an abscess or abscesses may confirm suspicion when clinical history and examination correlate but no purulence is expressed. *Staphylococcus aureus* and anaerobes are the prevailing microorganisms [1]. Treatment involves drainage of the abscess, abundant intravenous fluid resuscitation, and intravenous antibiotics. Complications arising from ASP are even less common but may include cranial nerve palsies, necrotizing fasciitis, and temporal lobe abscess [2–4]. In the setting of complications, multiple consultants may be involved to provide optimal care for the patient. Herein, we present the case of a young female with ASP and serious, life-threatening complications.

## 2. Case report

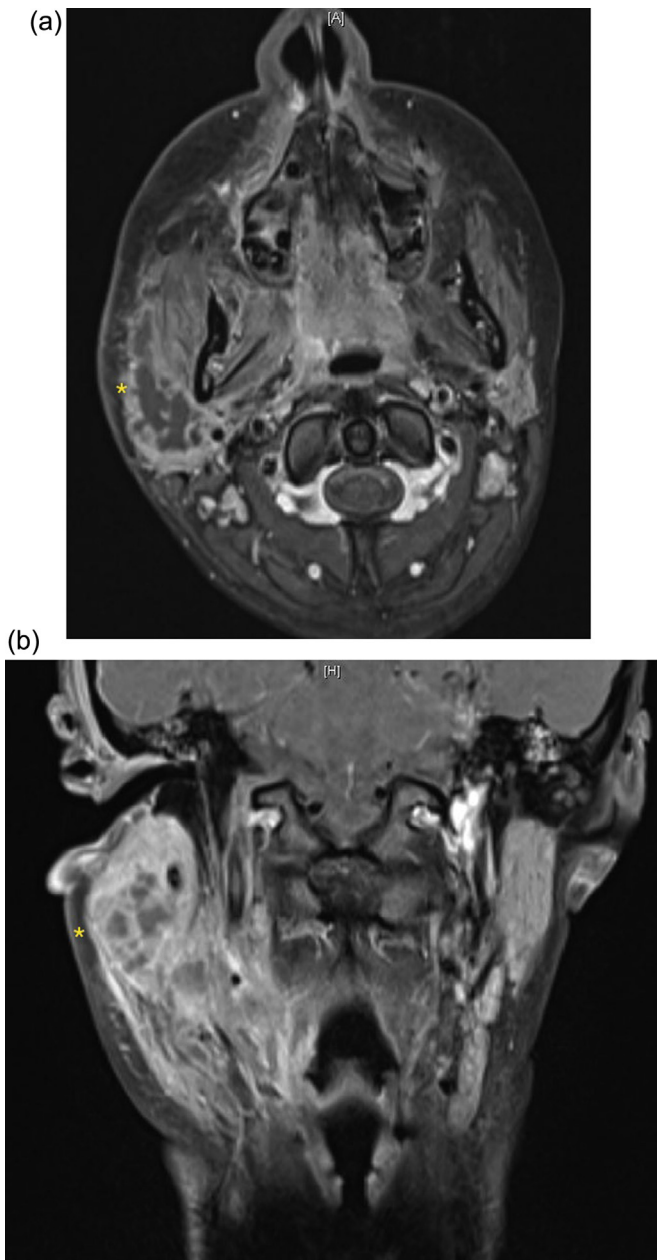
An 18-year-old otherwise healthy female was transferred to our institution with acute suppurative parotitis for right orbitotomy and drainage of a lateral orbital abscess.

The patient initially presented to a regional hospital emergency department (ED) with sore throat and fever. Monospot and rapid streptococcal screen were negative, but pharyngeal cultures returned positive for group C streptococcus so was given erythromycin for one week. She returned twice more over the ensuing 4 days with fevers, jaw swelling, and odynophagia. The diagnosis of parotitis was made and she was sent home to finish her course of erythromycin. Epstein-Barr viral titers were found to be positive and the diagnosis of infectious mononucleosis was added. She presented again after 3 additional days to a different ED with worsened pain and dehydration. White blood cell count (WBC) was noted to be 14,500 and she was treated with intravenous (IV) fluids, pain medication, and prednisone for 4 days. 3 days after discharge, she presented to her pediatrician with severe trismus and right jaw pain. She was admitted again for pain control, IV resuscitation and antibiotics. A computerized tomography (CT) scan did not reveal a retropharyngeal or peritonsillar abscess. Infectious disease (ID) consultation considered non-suppurative parotitis secondary to mononucleosis and initiated clindamycin and bactrim. She awoke the following morning with horizontal diplopia and was found to have a right abducens nerve palsy. Magnetic resonance imaging (MRI) performed demonstrated a right lateral subperiosteal orbital abscess so the patient was transferred to the referring hospital.

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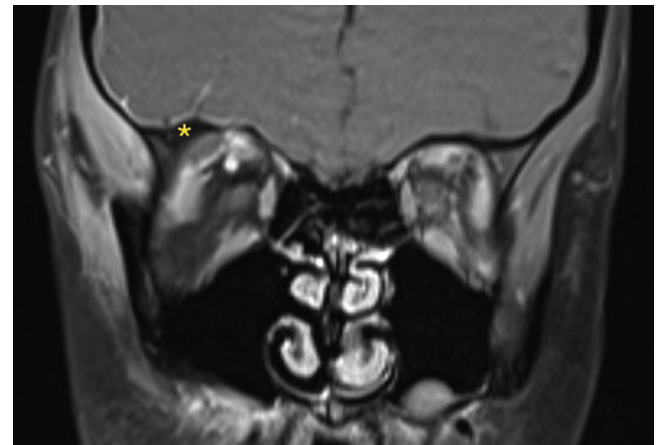
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**Fig. 1.** (a and b) MR imaging. T1-weighted, post-gadolinium (a) axial and (b) coronal sections. There is diffuse enlargement of the right parotid gland with multiple loculated abscesses consistent with acute suppurative parotitis. Inflammation can be seen spreading to the parapharyngeal space.

At the referring hospital, repeat MRI revealed multiple loculated abscesses within the right parotid gland, thickening of platysma and temporalis muscle, a small subperiosteal fluid collection along right lateral orbital wall and dural enhancement of the right temporal lobe area (Figs. 1a, 1b and 2). She was started on vancomycin, meropenem and clindamycin at the recommendation of ID consultants. She underwent ultrasound-guided percutaneous needle drainage of her parotid abscess by Interventional Radiology. Cultures returned fusobacterium. Blood culture grew fusobacterium as well. Testing for HIV, cytomegalovirus, toxoplasma, and influenza was negative. As she did not improve with empiric therapy, a CT scan was performed which demonstrated persistent right lateral orbital abscess along with significant pre-septal swelling extending to the temporal fossa. For this reason, she was transferred to our institution and underwent a right orbitotomy



**Fig. 2.** MR imaging. T1-weighted, post-gadolinium coronal section. A small right subperiosteal orbital abscess is shown along the right lateral orbital wall. The abscess lies lateral to the lateral rectus muscle.

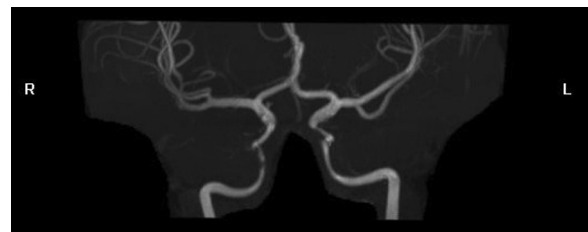
with incision and drainage of 2ccs of purulent fluid by the Ophthalmology Oculoplastic Surgery service. Cultures again returned fusobacterium species.

Post-operatively, an MRI was repeated along with magnetic resonance angiography and venography (MRA/MRV) which showed significant bilateral internal carotid arteritis, superior orbital vein thrombosis, and cavernous sinuses thrombosis (Figs. 3 and 4). Pediatric Hematology-Oncology was consulted who recommended starting anticoagulation. Work-up for hypercoagulability and paradoxical embolus was initiated. An echocardiogram did not find a patent foramen ovale and her ejection fraction was normal at 61%. Anti-thrombin III, proteins C and S, prothrombin gene mutation, anti-cardiolipin antibodies, lipoprotein, homocysteine level and platelet aggregate testing were unremarkable. Random blood glucose levels were not indicative of diabetes mellitus. Immunoglobulin levels inclusive of IgG, IgA, and IgM titers were also tested and returned within normal limits. Despite no neurologic deficits except an abducens palsy, further MRI testing found multiple punctate areas of infarction in the distal right middle cerebral artery distribution (Fig. 5).

Over time, the patient demonstrated signs of improvement. Repeat MRI/MRA showed improvement in her cervicofacial inflammation as well as resolution of her arteritis. Her course of vancomycin and meropenem was complicated by a rash and she was eventually discharged home to complete a 6-week course of clindamycin along with warfarin and aspirin for anticoagulation. At 3-month follow-up, the patient was back to near-baseline except for a residual right abducens palsy.

### 3. Discussion

Acute suppurative parotitis is thought to originate secondary to a multitude of conditions. Bacteria may reflux via Stenson's



**Fig. 3.** MR angiography. There is bilateral vascular attenuation and wall thickening along the internal carotid artery. The petrous, lacerum, cavernous, and ophthalmic segments of the internal carotid artery are involved.

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