Sinonasal organised haematoma

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Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Endoscopy
Procedure: Diagnostic procedure
Procedure: Removal
Imaging Technique: Percutaneous
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Haemorrhage Case Type: Clinical Cases
Authors: Dominic Raymakers, MD; Robert Hermans, MD, PhD; Katya Op de beeck, MD; Stephanie Van Aelst, MD
Patient: 52 years, male

Clinical History:

The patient consulted with spontaneous, recurrent intraoral haemorrhage for a few weeks. There was no previous oral/sinonasal trauma or surgery. No pain, only swelling of the left maxillary region. Clinically, a large mass was seen posteriorly in the left second quadrant, which started bleeding when touched. CT and MRI were performed.

Imaging Findings:

CT showed an expansile soft tissue density in the left maxillary sinus. The lesion contained hyperdense foci and some coarse calcifications. There was cortical breach through the inferolateral sinus wall, with protrusion into the left gingivobuccal sulcus as well as into the ostiomeatal unit. Bone window reformations showed erosion of the posterior and lateral sinus wall. On unenhanced T1-weighted images, the lesion appeared heterogeneous and of intermediate signal, with some slightly hyperintense and hypointense components. On T2-weighted images, hyperintense lobulations with a peripheral T2-hypointense rim were seen. There was some fluid around the lesion, suggestive of entrapped secretions. After intravenous contrast administration, the lesion showed lobulated areas of enhancement. The maxillary sinus mucosa appeared thickened and enhancing.

Discussion:

Sinonasal organised haematoma (SOH) is an uncommon condition that may mimic malignant lesions of the paranasal sinuses. SOHs are mostly located near the maxillary sinus ostium, but they may occur in all paranasal sinuses [1]. SOH has a wide age distribution. Patients typically present with recurrent episodes of epistaxis. Other symptoms include progressive cheek swelling, local tenderness, exophthalmos and nasal congestion. Symptoms typically don’t occur as long as the lesion remains localised to the affected sinus [1-4].

On unenhanced CT, SOH is mostly isodense to soft tissue or shows ground-glass density [3]. Sometimes hyperdense intralesional foci are seen [2]. SOHs are ill-defined lesions, with expansion of the affected sinus, areas of smooth demineralisation and sometimes even destruction of the walls [4]. Intralesional calcifications occur infrequent [2, 4]. SOHs mostly show patchy heterogeneous enhancement [2]. MRI is superior to CT for evaluating SOH [2]. On unenhanced T1-weighted images SOH shows intermediate signal.
intensity, with scattered foci of hyperintensity [1]. On T2, SOH appears more heterogeneous with hyperintense lobules. A typical finding is a peripheral T2-hypointense rim surrounding these lobules, which corresponds to a fibrous pseudocapsule [2, 4]. Contrast-enhanced T1-weighted images show heterogeneous areas of nodular or papillary enhancement [2, 4]. SOHs are mostly surrounded by mucus and thickened mucosa [1, 3].

The differential diagnosis consists of benign and malignant lesions. Benign alternatives are mucocele, fungal infection, inflammatory polyp and cholesterol granuloma, which can be easily differentiated because they don't enhance [1, 2]. Inverted papilloma is mostly located along the lateral nasal cavity wall and may display a characteristic cerebriform pattern of sinonasal mucosa on T2- or contrast enhanced T1-weighted MR images, while the enhancing components in SOH are distinct from the mucosa [1]. Sinonasal haemangiomata and angiomatous polyps are difficult to differentiate from SOH, and it has been suggested that they represent the same pathologic entity [5]. Haemangiomas frequently exhibit flow voids on MR, where SOHs don't. Malignant lesions typically show more aggressive bony destruction and soft tissue invasion compared to the smooth sinonasal wall demineralisation usually seen in SOH. A particularly useful sign of SOH is the presence of an intact sinus mucosa separating the lesion from the areas of bony demineralisation [1].

Pre-operative biopsy can be useful but is often inconclusive. A SOH should be suggested if a sinonasal lesion in a young patient shows above mentioned imaging characteristics.

Treatment consists of complete surgical removal and is mostly curative. An endoscopic approach is often sufficient.

**Differential Diagnosis List:** Sinonasal organised haematoma, Sinonasal neoplasm, Fungal infection

**Final Diagnosis:** Sinonasal organised haematoma

**References:**


Description: Axial contrast-enhanced image: an expansile soft tissue density lesion is seen in the left maxillary sinus. The lesion contains hyperdense foci and some coarse calcifications. Origin: Hermans R, Department of Radiology, UZ Leuven, Leuven, Belgium
Description: Coronal contrast-enhanced image: there is cortical breach through the inferolateral sinus wall, and protrusion in the left gingivobuccal sulcus (red arrow). There is also protrusion in the ostiomeatal unit (blue arrow). Origin: Hermans R, Department of Radiology, UZ Leuven, Leuven, Belgium
Description: Axial contrast-enhanced image (bone window): there is erosion of the posterior and lateral sinus wall (red arrows). Origin: Hermans R, Department of Radiology, UZ Leuven, Leuven, Belgium
Description: Coronal plain T1-weighted image: heterogeneous intermediate signal mass in the left maxillary sinus, with extension into the upper gingivobuccal sulcus (red arrow) and in the middle and inferior nasal meatus (blue arrows). Origin: Op de beeck K, Department of Radiology, UZ Leuven, Leuven, Belgium
Description: Coronal gadolinium-enhanced T1-weighted image: the lesion shows lobulated areas of enhancement (blue arrows). The maxillary sinus mucosa appears thickened and enhancing (red arrow).

Origin: Op de beeck K, Department of Radiology, UZ Leuven, Leuven, Belgium
Description: Coronal T2-weighted image: the lesion shows T2 hyperintense lobulations with a peripheral T2-hypointense rim (blue arrows). Some fluid is seen around the lesion, suggestive of entrapped secretions (red arrow). Origin: Op de beeck K, Department of Radiology, UZ Leuven, Leuven, Belgium
**Description:** Axial gadolinium-enhanced T1-weighted image: there are lobulated enhancing components (blue arrow) and surrounding thickened enhancing mucosa (red arrow).

**Origin:**
Op de beeck K, Department of Radiology, UZ Leuven, Leuven, Belgium
Description: Large amounts of blood, amorphous eosinophilic material and connective tissue with signs of organisation. Origin: Stephanie Van Aelst, Department of Pathology, UZ Leuven, Leuven, Belgium
Description: Sinus mucosa lined by a non-atypical respiratory epithelium with inflammatory cells in the underlying stroma. Presence of blood and fibrinopurulent material containing neutrophilic granulocytes and nuclear debris. The findings are suggestive of organising haematoma. Origin: Stephanie Van Aelst, Department of Pathology, UZ Leuven, Leuven, Belgium
**Description:** Intra-oral inspection shows a large yellowish lesion in the second posterior quadrant, which starts bleeding when touched. **Origin:** Department of otorhinolaryngology, head and neck surgery, UZ Leuven, Leuven, Belgium