Unusually large radicular cyst presenting in the maxillary sinus

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DESCRIPTION

A 25-year-old, otherwise systemically healthy male patient presented with a main problem of painless swelling over the right side of the face. The patient first noticed the swelling about a month back, and since then, it had gradually increased to the present size. There was no history of recent trauma. No sensory deficit over the face, visual disturbance or nasal blockade was reported. On clinical examination, a diffuse swelling was noted over the right midface region, extending from the infraorbital region to the commissure of mouth (figure 1A,B). The overlying skin appeared normal. The swelling was non-tender and firm on palpation, with no local rise in temperature. Intraoral examination revealed obliteration of buccal vestibule associated with a painless grossly decayed right maxillary first molar.

Presence of diffuse facial swelling associated with grossly decayed molar was suggestive of possible infectious aetiology. However, lack of tenderness/pain, local or systemic fever and absence of pus discharge, along with normal leucocyte count on blood investigation ruled out fascial space infection. Paranasal sinus view was taken as screening radiograph, which showed diffuse haziness involving the entire right maxillary sinus (figure 1C). For further investigation, CT scan was advised. The sectional images of CT scan showed the presence of solitary cystic lesion occupying the right maxillary sinus, with thinning of bone at its periphery. The anterior wall of the maxilla and inferior portion of zygomatic bone appeared thinned out and perforated.

A small pocket of air-filled space was seen above the lesion (figure 1D, E). Based on the clinical and imaging finding a working diagnosis of maxillary sinus cyst, most likely a mucous retention cyst was made. The differential diagnosis included mucocele and extrinsic cyst of dental origin. Aspiration from the lesion was under local anaesthesia, which yielded a yellow coloured fluid, thus ruling out a solid tumour or vascular pathology and confirming the cystic nature of the lesion.

Surgical enucleation of the cyst was planned and executed under general anaesthesia. The options to access the lesion included; intraoral Caldwell-Luc procedure, an extroral approach using Weber-Ferguson’s incision and through endoscopy. While the extroral approach is more suited for large, aggressive and malignant lesions, the endoscopic approach is useful to remove less accessible lesions, like those inside the nasal cavity or deep in the paranasal sinuses. The Caldwell-Luc approach was used in the present case. Being an intraoral approach, it has an advantage of being cosmetic. It uses the thin nature of maxillary bone, distal to the canine tooth to gain entry into the maxillary sinus. The approach provided sufficient access for complete removal of the cyst (figure 2A–D). The grossly decayed maxillary first molar was also removed. The excised specimen was submitted for histopathological evaluation, which showed cyst lining composed of nonkeratinised stratified squamous epithelium of few cell layers thickness (H&E stained; 10× magnification) (E) and postoperative photograph at 6 months follow-up showing resolution of facial swelling.

Figure 1 Clinical images showing swelling localised over right midface region on frontal (A) and bird’s eye view (B). Paranasal sinus view showing haziness over the entire right maxillary sinus (C). CT coronal (D) and axial (E) images showing cystic lesion occupying the entire right maxillary sinus, with resorption of maxillary and zygomatic bone.

Figure 2 Intraoperative images showing exposure of the cyst through Caldwell-Luc approach (A), maxillary sinus after removal of the cyst (B), closure of surgical site (C) and cyst removed intooto (D). Photomicrograph showing cyst lining composed of stratified squamous epithelium of few cells layers thickness (H&E stained; 10× magnification) (E) and postoperative photograph at 6 months follow-up showing resolution of facial swelling.
Learning points

- Cyst of the maxillary sinus can either arise from the sinus lining (intrinsic cyst) or may originate from nearby structures (extrinsic cyst).
- Mucous retention cyst is the most common intrinsic cyst of the maxillary sinus. Extrinsic cysts on the sinus are mostly of dental origin, with dentigerous cyst arising from an impacted molar being most common.
- Radicular cysts are inflammatory odontogenic cyst, which typically presents as small radiolucent lesion around root apex of one or more teeth. The air-filled sinus and its thin walls provide less resistance to cyst growth, allowing it to considerably increase in size before they become symptomatic and are clinically noted. Such large radicular cyst though infrequently reported, should be included in the differential diagnosis of extrinsic maxillary sinus cyst.

Patient’s perspective

The constantly growing swelling over my face was a concern to me, even though it was not painful. I had consulted my dental surgeon for the same, who suspected it to be an infection which had spread from my upper tooth. However, even when the antibiotic medicines could not control the swelling, I was referred for further examination and X-rays and scans. Although finally, the radiographs showed up the cause of the swelling to be a cyst in my sinus, I was worried about the risk of surgery, and more so about the possible marks, it would leave on my face. I was happy when the doctor gave an option of approaching the disease entirely through the mouth. I had no major problems immediately following surgery, and the swelling over my face has completely gone.