

Mucocele of a pneumatised uncinata process: first reported case

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Abstract

Objective: We report a unique case of a mucocele of a pneumatised uncinata process.

Method: Clinical, radiological and intra-operative findings are presented.

Results: A 43-year-old woman was referred to our ENT department suffering from persistent symptoms of left-sided sinusitis. Although an initial computed tomography scan suggested a lacrimal duct mass, dacryocystography showed free flow through the nasolacrimal duct. The patient underwent surgery, revealing a mucocele within a pneumatised uncinata process.

Conclusion: This patient's clinical, radiological and intra-operative findings illustrate how variations in sinus anatomy can pose a diagnostic challenge.

Key words: Uncinate Process; Paranasal Sinuses; Ethmoid; Mucocele

Introduction

The term 'mucocele' was first used by Rollet in 1896.¹ The histological components of this lesion were first described by Onodi in 1901. A mucocele is an epithelium-lined, mucus-filled sac located within a paranasal sinus. It is capable of expansion by bone resorption and new bone formation.² This dynamic process distinguishes a mucocele from a blocked sinus with trapped mucus. Although the commonest cause of mucocele development is previous surgery, the process may be initiated by chronic inflammation, benign tumours or trauma.

Mucoceles progress slowly, and symptoms and signs are the result of their progressive expansion. Symptoms vary from mild (e.g. nasal obstruction) to severe (e.g. diplopia and impaired vision). Mucoceles can invade the skull base and cause severe problems.

The uncinata process plays a role in paranasal sinus drainage and pathology; it is also a key landmark during endoscopic sinus surgery.

The presence of a pneumatised uncinata process (uncinate bulla) can cause narrowing of the middle meatus, which may lead to obstruction of drainage through the infundibulum.³

In this report, we present a case of a mucocele of a pneumatised uncinata process which presented as recurrent sinusitis.

Case report

A 43-year-old woman was referred to our ENT department suffering from persistent symptoms of sinusitis. These were predominantly left-sided and remained unresolved despite courses of steroids and antibiotics prescribed by the patient's general practitioner.

The patient was seen in our department a month after the initial referral. Upon examination, she was noted to have what appeared to be an enlarged left ethmoidal bulla.

Due to this finding and the unilateral nature of her symptoms, a computed tomography (CT) scan was performed (Figure 1). This showed a 1.5 cm diameter, soft tissue mass lying in the fossa of the lacrimal sac, extending down the course of the left nasolacrimal duct and protruding into the ethmoidal air cells and the middle and upper meati. The CT also suggested a lacrimal gland mass, although there were no symptoms of epiphora.

Further investigation with dacryocystography showed no definite filling defect within the lacrimal sac (Figure 2).

Due to the inconclusive nature of the radiological findings and the need to exclude sinister pathology, early endoscopic surgery was planned.

At surgery, a fullness of the left lateral nasal wall was seen in the area of the uncinata process (Figure 3). Incision of the anterior border of the fullness caused an outflow of pus (Figure 4). Further endoscopic visualisation identified the cavity as an uncinata bulla. A diagnosis of mucocele of a left uncinata bulla was made. The mucocele was decompressed and an uncinectomy performed.

Discussion

The current literature reports a high frequency of anatomical variation of facial bone pneumatisation. However, as yet there is no agreed theory of explanation. During research into the present case, we performed a literature search for articles referring to the anatomy of the uncinata process and its anatomical variations. No reports of uncinata mucocele could be found.

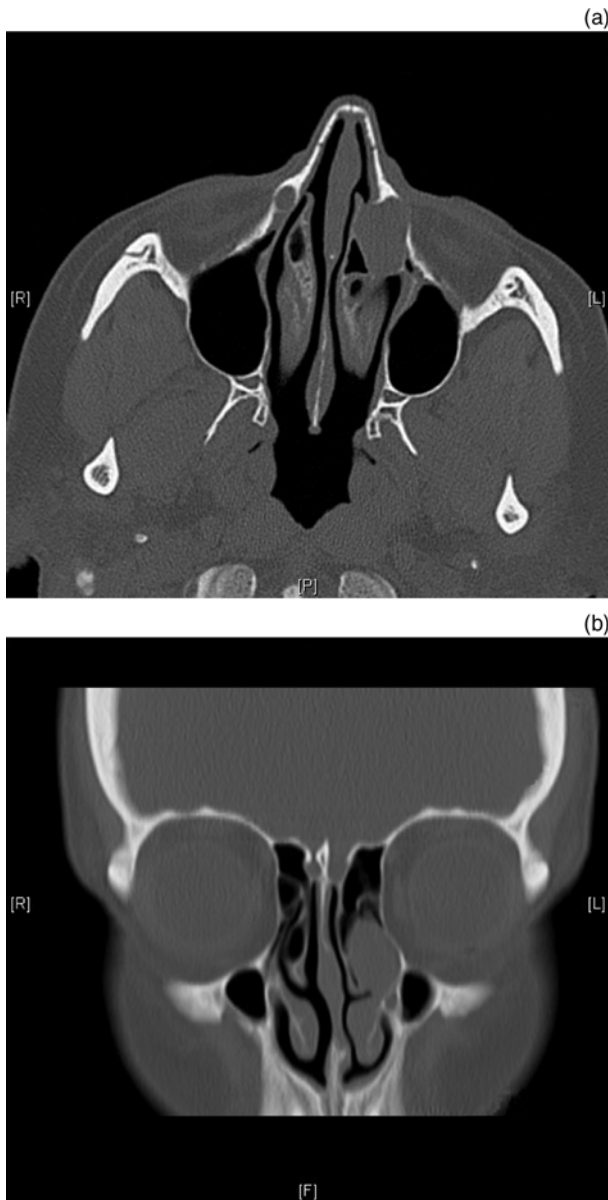


FIG. 1

(a) Axial and (b) coronal computed tomography scans of the sinuses, showing left uncinete mucocele. R = right; L = left; P = posterior; F = inferior

The uncinete process is a thin, boomerang-shaped bone structure that projects from the ethmoid bone to the ethmoid process of the inferior concha.

- There is a high frequency of anatomical variation of the paranasal sinuses
- Pneumatisation of the uncinete process may impair sinus drainage
- A mucocele of an uncinete bulla is a rare, previously unreported finding

Between the 10th and 12th week of intrauterine development, invagination of the mucus of the middle meatus occurs and the primary maxillary sinus is formed.⁴ At this stage, the uncinete process and bulla ethmoidalis delineate



FIG. 2

Left dacryocystogram showing flow of contrast into the nasal cavity.

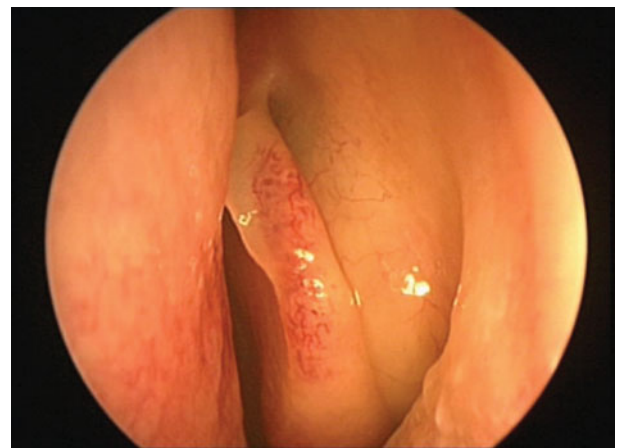


FIG. 3

Endoscopic view of intact uncinete mucocele.

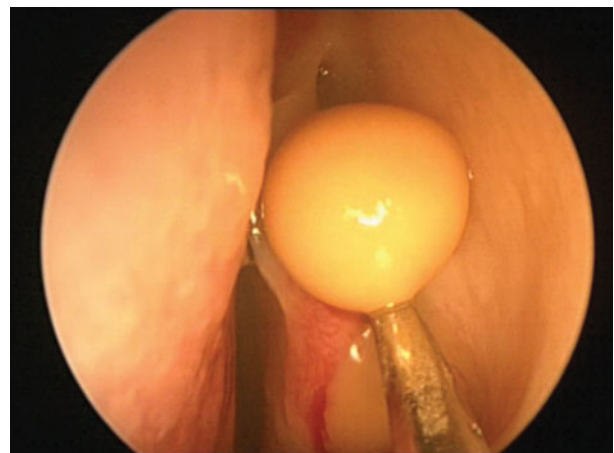


FIG. 4

Endoscopic view showing incision of uncinete mucocele.

a narrow groove (the hiatus semilunaris). In rare circumstances, as development continues pneumatisation can occur where there is an extension of an air cell into the uncinat process, most frequently in the anterosuperior region.³ The prevalence of this anatomical variation has been reported as 0.4–5 per cent.⁵ Such an uncinat bulla (as it could also be termed) can cause narrowing of the infundibulum and impaired sinus drainage.⁶ This functional blockage seems to correspond to an area of contact between the uncinat bulla and the middle turbinate. Such a blockage can lead to recurrent sinusitis, as in our case.

This case report furthers our knowledge of this anatomically diverse region, and brings to light a new and clinically relevant pathology.

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