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Case report

Giant rhinolith: A case report

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ABSTRACT

Rhinolith is a stone that form in the nose. It is an uncommon disease that may present asymptotically. It is usually occur secondary to retained foreign bodies. Sometimes, it can be cause by fungal infection. It can be seen on radiographs as a radiopaque object in the nasal fossa and may be confused with several pathologic entities that will call for more invasive surgical procedures. Here we present a case of giant rhinolith possibly arising from retained foreign body, and discuss its clinical and radiologic features.

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1. Introduction

Rhinolith is a mass resulting from calcification of an endogenous or exogenous nidus within the nasal cavity.¹ It is usually occur secondary to foreign body that lodged into nasal cavity. Rhinolith is usually found in the floor of nose, about halfway in between anterior and posterior portion of nares.

Etiology is not always detected, and it may be exogenous (such as grains, small stone fragments, plastic parts, seeds, insects, glass, wood and others), or endogenous, resulting from dry secretion, clots, cell lysis products, mucosa necrosis and tooth fragments, which operate as foreign body. There is a case of giant rhinolith reported in Taiwan possibly cause by Aspergillosis infection.¹

Foreign bodies of high radiodensity are easily identified and localized using conventional radiography. However, computed tomography (CT) may be helpful in localizing foreign bodies of lower radiodensity and also helps in identifying the extend of the lesion and decision of surgical approach.²

We present a case of giant rhinolith possibly arising from retained foreign body, and discuss its clinical and radiologic features.

2. Case report

A 66 year old Malay lady with background history of diabetes mellitus and hypertension presented with 8 month history of nose swelling associated with frequent right sided nose blocked. She also had foul smelly discharge from right nostril and right eye pain. She denied any history of foreign body, trauma, shortness of breath or loss of appetite.

Examination on admission noted mass at right nose causing loss of right nasolabial angle. Anterior rhinoscopy noted exposed right lateral nasal cartilage with foul smelling pus discharge and narrowed nasal cavity. No mass seen over left nostril. Rigid nasendoscopy noted pus at right nostril, friable mass with contact bleeding (Fig. 1) and compress the septum to the left. We are unable to pass scope through the left nostril due to mass compression.

Our initial differential diagnosis was sinonasal malignancy based on history and scope findings so computed tomography of paranasal sinus was arranged for patient.

Computed Tomography of paranasal sinus revealed

1. Large right nasal cavity calcified mass may represents giant nasal rhinolith.
2. Possible underlying right antro-choanal polyps.
3. Pansinusitis with erosion of bilateral lamina papyracea, fungal sinusitis needs to be considered (Figs. 2 and 3).

She underwent endoscopic right giant rhinolith removal with right choanal polyps removal under general anesthesia. Intraoperatively noted giant rhinolith occupying the whole of nasal cavity. Post removal of rhinolith noted inferior turbinate was pushed lat-

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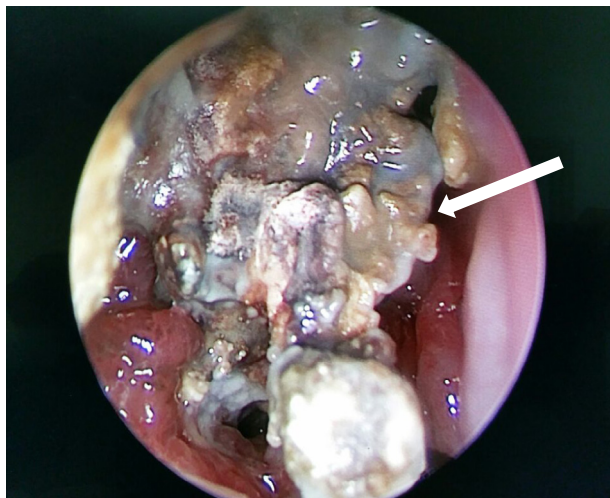


Fig. 1. Rigid nasoendoscopy noted pus at right nostril, friable mass with contact bleeding.

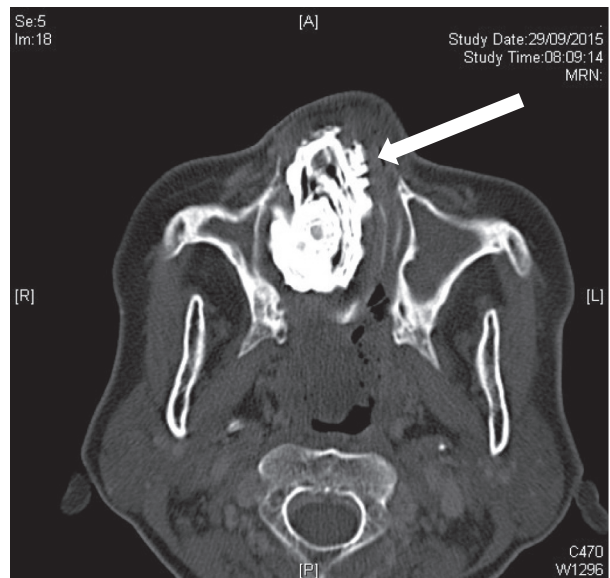


Fig. 2. There is a large irregular calcified mass occupying almost entire right nasal cavity, measures 4.9 cm (AP) \times 3.0 cm (W) \times 4.2 cm (CC), causing expansion of right nasal cavity. The normal right nasal turbinates are not visualised, possible destroyed by the mass. The nasal septum is displaced and deviated to the left resulting in left nasal cavity obliteration.

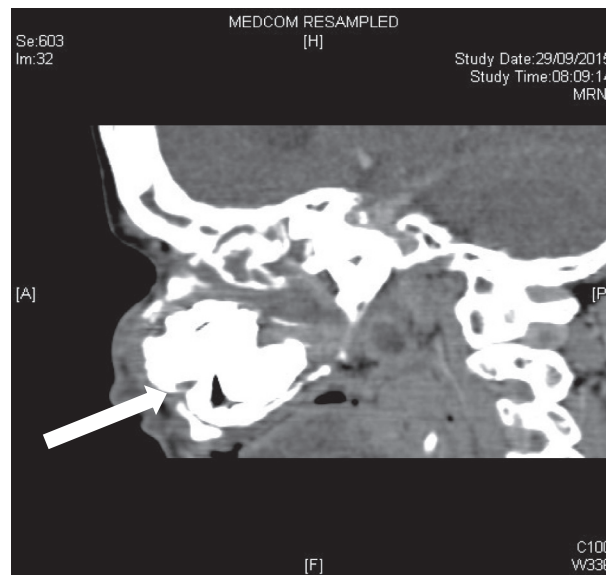


Fig. 3. There is a large irregular calcified mass occupying almost entire right nasal cavity, measures 4.9 cm (AP) \times 3.0 cm (W) \times 4.2 cm (CC), causing expansion of right nasal cavity. The normal right nasal turbinates are not visualised, possible destroyed by the mass. The nasal septum is displaced and deviated to the left resulting in left nasal cavity obliteration.

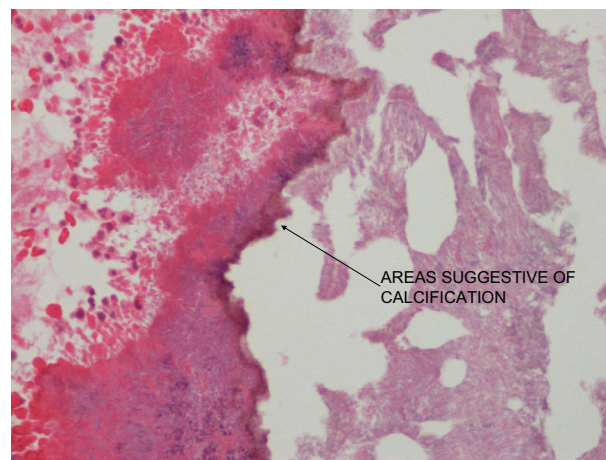


Fig. 4. Histopathology examination of right nasal mass showed fragments of non-viable tissue with areas of calcification suggestive of rhinolith.

erally and become atrophic (rudimentary), polypoidal uncinate process, middle turbinate atrophic and pushed posteriorly. There is also presence of right choanal polyps arising from the lateral wall of nasal cavity pushing posteriorly to choanae, crossing to left choana. Maxillary antrum appear shallow and polypoidal, mucoid discharge present, no pus. Bulla ethmoidalis appears atrophic. There is presence of polypoidal tissue in the sphenoid ostium. Frontal recess looks clear. Possible dehiscence of lamina papyracea of the right side. Septum is medialised to the right side.

Post operatively was uneventful. Histopathology examination of the right nasal mass showed fragments of non-viable tissue with areas of calcification suggestive of rhinolith. (Fig. 4) The right choanal polyps and pedicle of right lateral mass confirm as benign inflammatory polyps. Specimen showed edematous stroma with patchy aggregates of seromucinous glands and mild-moderate lymphoplasmic cells infiltration noted. Scattered cystically dilated

glands of varying sizes are also noted, lined by respiratory-type epithelium and some are filled with mucin. No dysplasia or malignancy seen. Patient was recovered well during our last review.

3. Discussion

Rhinolithiasis was first described by Bartholin in 1654.² Etiology is not always detected. The most common cause of rhinolith is retained foreign bodies. Foreign bodies normally access the site anteriorly, but they may occasionally reach into the nasal cavity through the choana by cough or vomiting (see Fig. 5).

The presence of foreign bodies cause local inflammatory reaction, leading to deposits of carbonate and calcium phosphate, magnesium, iron and aluminum, in addition to organic substances such as glutamic acid and glycin, leading to slow and progressive increase in size.^{3,4}

It is often asymptomatic. Patient will seek medical treatment when they start to have symptoms of progressive unilateral nasal



Fig. 5. Picture showed mass that remove from right nasal cavity.

obstruction, foul smelly nasal discharge, pain or recurrent epis-taxis. If undetected for many years rhinoliths may grow large enough to cause nasal obstruction and distortion or destruction of surrounding structures.^{5,7}

There have been various reports of septal deviation and septal perforation⁶ and destruction of the lateral wall of the nasal cavity with growth of the calculus to involve the maxillary sinus.⁸ Rarely a large calculus may produce an oro-antral fistula⁹ or an oronasal fistula³

Diagnosis is usually based on history of foreign body introduction into the nose, physical examination and complementary tests. Simple X-ray and paranasal sinuses CT scan support the diagnosis through the presence of calcified tumor in the nasal fossa, in addition to supporting the planning of surgical approach.

The differential diagnosis should include calcified polyps, odontomes, granulomas, granulomatous diseases, sequestration following local osteomyelitis, osteomas, calcified odontogenic cysts, chondrosarcoma, osteosarcoma and sinonasal malignancy.¹⁰

Treatment consists of removal of rhinolith and the surgical approach chosen depends on location and size of the rhinolith and presence of complications, but most of them can be removed endoscopically. External approaches may be necessary in cases of giant rhinoliths, and endoscopes are extremely helpful in both

approaches. Postoperative extensive nasal douching is really important to prevent further complications.

4. Conclusion

Rhinolithiasis is an uncommon disease that may be left undiagnosed for many years and presented with complications. The diagnosis is made by clinical history and physical examination, and it should be considered in cases of unilateral nasal obstruction with foul smelly nasal discharge. Treatment consists of removing the rhinolith and correcting occasional complications.

Declaration of conflicting interest

The author(s) has no potential conflicts of interest.

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