Case 14864

Eurorad

Solitary fibrous tumour of the sinonasal space

Published on 28.08.2017

DOI: 10.1594/EURORAD/CASE.14864
ISSN: 1563-4086
Section: Head & neck imaging
Area of Interest: Abdominal wall Ear / Nose / Throat
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 73 years, male

Clinical History:

A 75-year-old man came to our attention complaining of a 12-month history of unilateral left-sided progressive nasal obstruction and associated occasional epistaxis. He had no other health problems except moderately high blood pressure.

Imaging Findings:

The patient underwent CT and MRI scans with contrast. CT (Fig. 1, 2, 3, 4) revealed a well-circumscribed soft tissue mass occupying almost the entire left nasal cavity. The mass contained no calcification but caused thinning of the lamina papyracea, thinning, remodelling and focal erosion of the medial wall of the left maxillary sinus and complete erosion of the middle left turbinate. Post contrast it demonstrated avid, homogeneous enhancement.
MRI confirmed a mass isointense with brain tissue on T1-weighted images. On T2-weighted imaging the mass was inhomogeneous (Fig. 5, 6) with a “black and white" pattern [1] correlating to different grades of collagen stroma. Gd–enhancement was strong and homogeneous (Fig. 7) similar to the CT examination, and thin flow voids were suggestive of a benign neoplasm [2]. Preoperative biopsy and histopathological analysis showed mesenchymal proliferation of fusiform cells in keeping with solitary fibrous tumour.

Discussion:

A. Background: Solitary fibrous tumour (SFT) is an uncommon spindle cell tumour, first reported in the pleura by Klemper and Rabin in 1931 [3]. The majority of cases are benign (80-90%) [4]. In the sinonasal region it is an uncommon finding (less than 40 cases in the literature prior to 2015) and almost always benign [5]. Pleural SFTs are the commonest location but they may be found in many other areas. SFTs arise in a wide age range but they predominantly present in the 6th and 7th decades. They occur in men and women equally. There is no genetic predisposition and no relationship to exposure to asbestos, tobacco or any other environmental agent.
B. Clinical Perspective: The patient had progressive left-sided nasal obstruction and occasional epistaxis. CT was performed initially, followed later by MRI to better characterise the lesion.
Nasendoscopy demonstrated a large, reddish, well-circumscribed, friable, polypoidal mass, filling the entire left nasal cavity. Preoperative biopsy and histopathological analysis showed a mesenchymal proliferation of fusiform cells with significant atypia. The cellular immunochemistry staining profile was beta-catenin+, CD 34-, actin-, S-100- and desmin-. The suggestion of a fibromatous nodule was made. Definitive pathology revealed a cellular pattern with bcl + and STAT 6 positivity on nuclei switching leading to a definitive diagnosis of SFT [6].
C. Imaging Perspective: CT revealed a well-defined polypoidal nasal mass with intense and homogeneous enhancement. MRI confirmed a mass with a "black and white" pattern on T2 weighted images and intense,

homogeneous enhancement.
D. Outcome: Imaging was helpful to suggest the diagnosis, and to point out the benign nature of the neoplasm, and also to suggest therapeutic options such as endoscopic sinus surgery. Homogeneous enhancement and the well-defined polypoid morphology reflected its benign nature. The "black and white" pattern on T2-weighted images was helpful to suggest a diagnosis of solitary fibrous tumour.
The lesion was completely removed during endoscopic sinus surgery through the nostril. No significant intraoperative bleeding occurred. During the procedure a large middle meatal antrostomy was performed, and the anterior and posterior ethmoidal cells were opened.
E. Take Home Message: Making a diagnosis of extrapleural SFT is difficult. CT and MRI can be helpful in suggesting the diagnosis and the nature of the lesion.
Differential Diagnosis List: Solitary fibrous tumour of the sinonasal cavity, Low-grade fibrosarcoma, Haemangioperycitoma, Inverted papilloma, Angiomatous polyp, Schwannoma, Leiomyoma

Final Diagnosis: Solitary fibrous tumour of the sinonasal cavity

References:

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Ginat DT, Bokhari A, Bhatt S, Dogra V (2011) Imaging features of solitary fibrous tumors. American journal of Roentgenology 196:487-495 (PMID: 21343490)
Zielinska-Kazmierska B,Godecka J, Szyskowsky A, (2015) Solitary fibrous tumor of the nasal cavity and paranasal sinuses: a case report. Journal of Oral Biology and Craniofacial Research 5(2):112-116 (PMID:26258025)
Yoshida A, Tsuta K, Ohno M, Yoshida M, Narita Y, Kawai A, Asamura H, Kushima R (2014) STAT6 immunohistochemistry is helpful in the diagnosis of solitary fibrous tumors. Am J Surg Pathol 38(4) 552-9 (PMID: 24625420)

Figure 1

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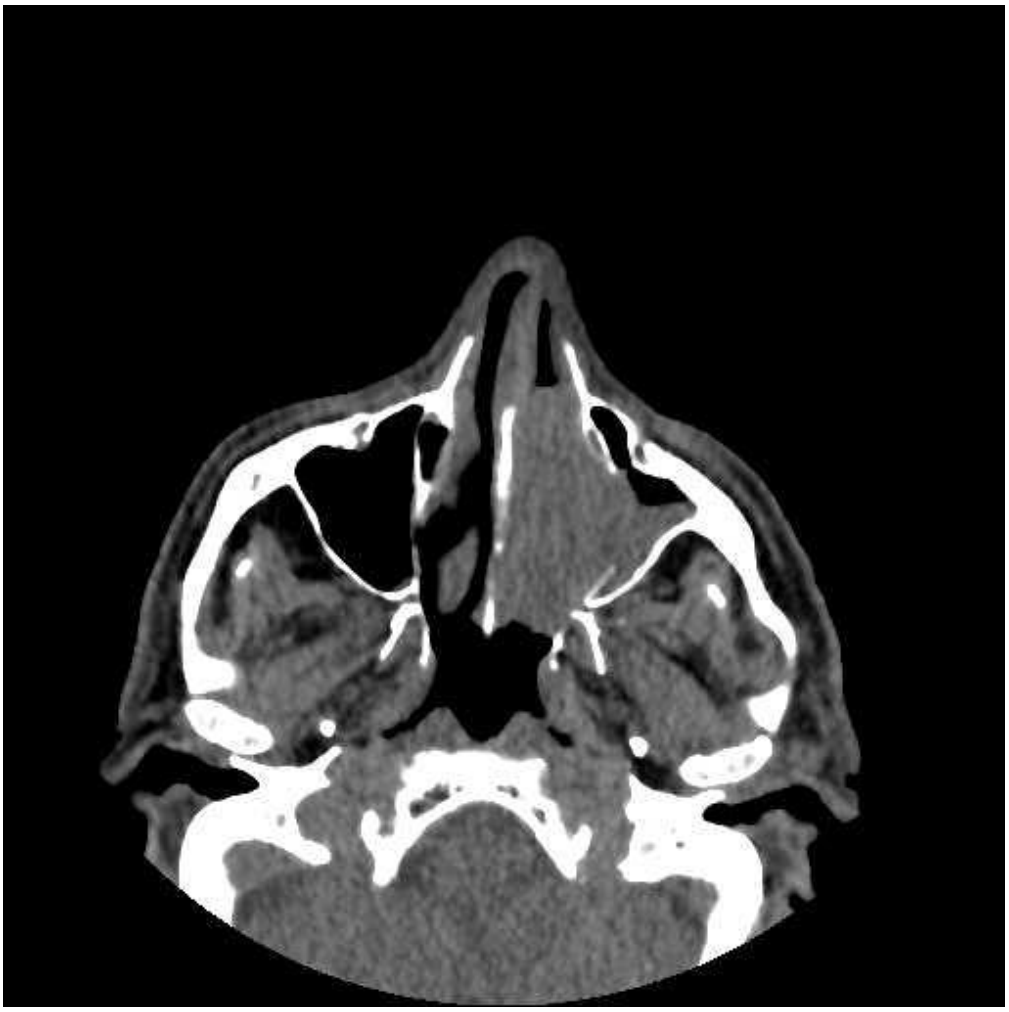

Description: Lobulated well-circumscribed mass filling the left nasal cavity and extending into the maxillary sinus. **Origin:** Lodi, Ospedale Maggiore, unità opertaiva di radiologia

Figure 2

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Description: Solid soft tissue mass without calcification, with erosion of the left maxillary sinus medial wall. **Origin:** Ospedale maggiore di Lodi, unità operativa di radiologia

Figure 3

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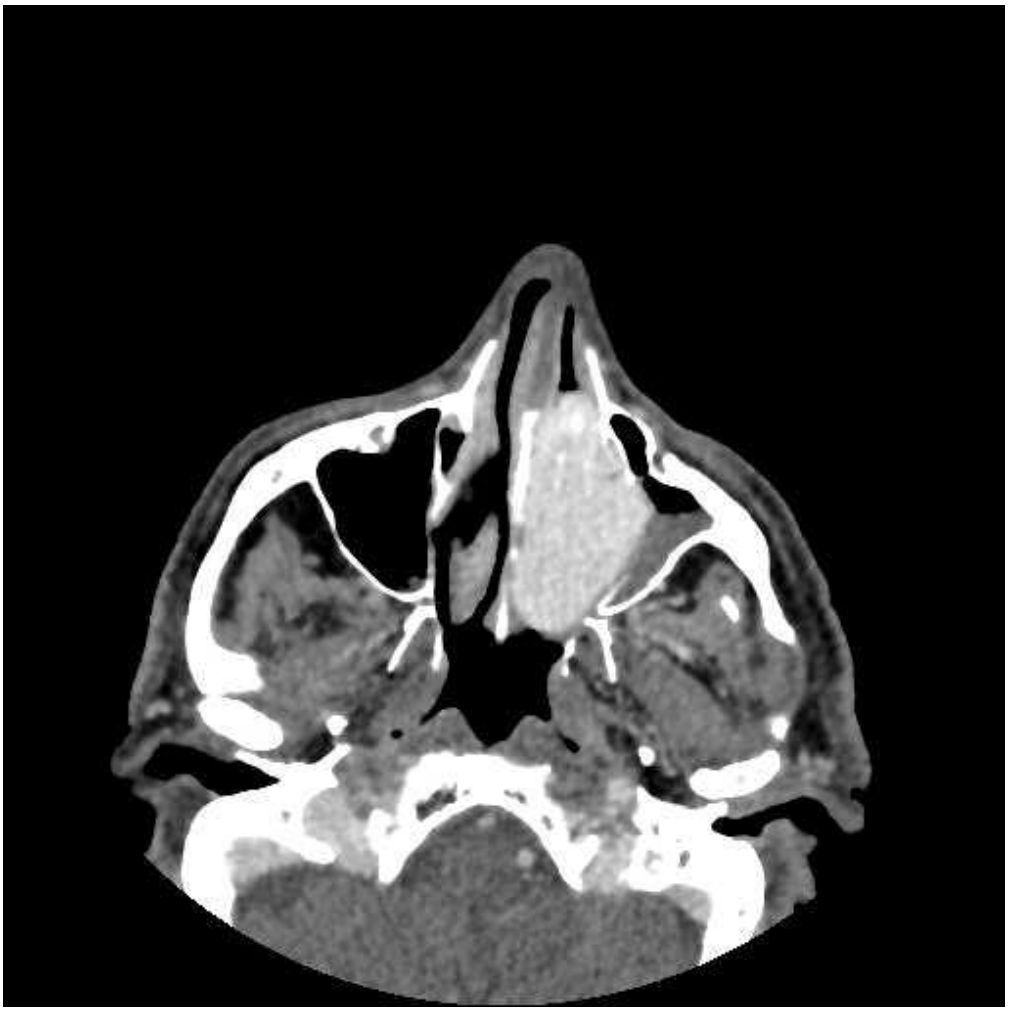

Description: Well-defined, polypoidal left sinonasal mass with avid homogeneous enhancement.
Origin: Ospedale maggiore Lodi, unità operativa di radiologia

Figure 4

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Description: Left sinonasal mass with avid homogeneous enhancement involving maxillary and ethmoid air cells. **Origin:** Ospedale maggiore Lodi, unità operativa di radiologia

Figure 5

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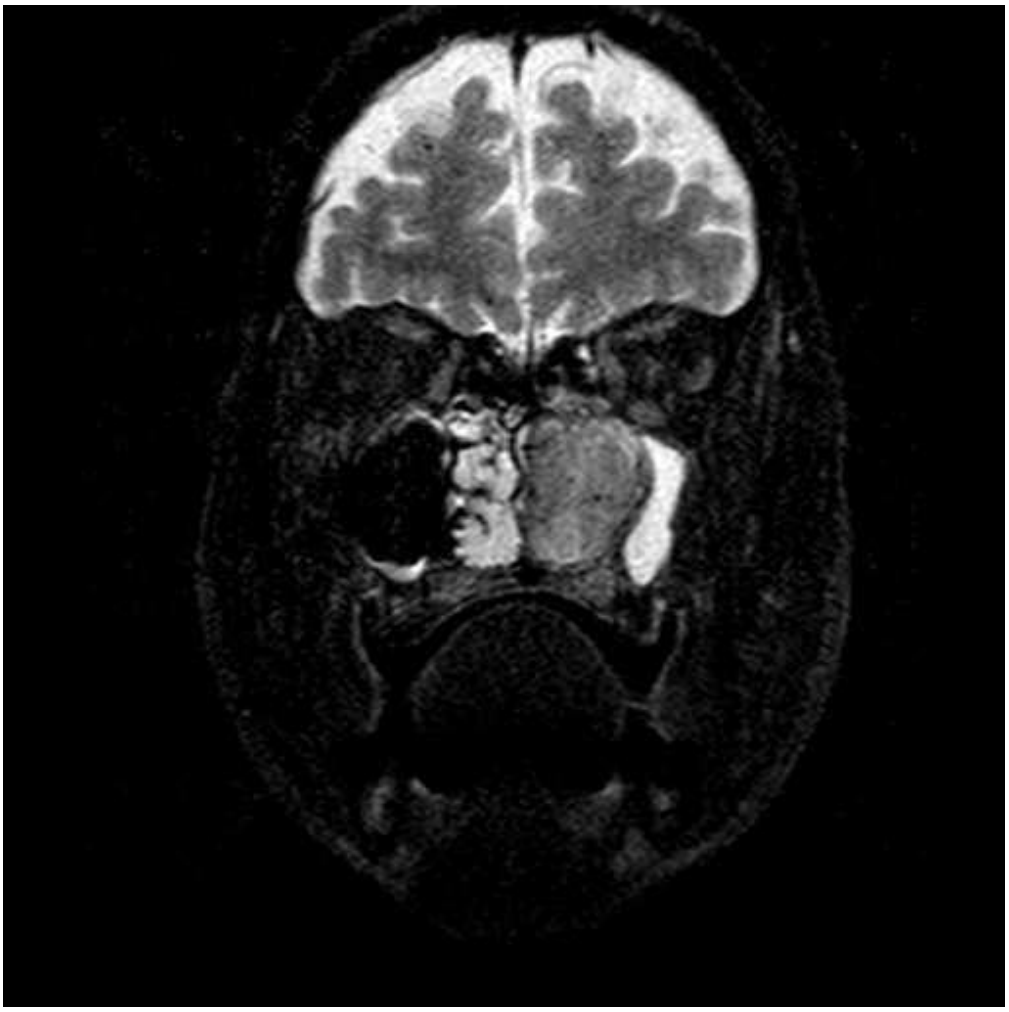

Description: Iso to hyperintense mass in the left nasal cavity obstructing adjacent maxillary sinus drainage resulting in a fluid-filled antrum. **Origin:** Ospedale Lodi, unità operativa radiologia

Figure 6

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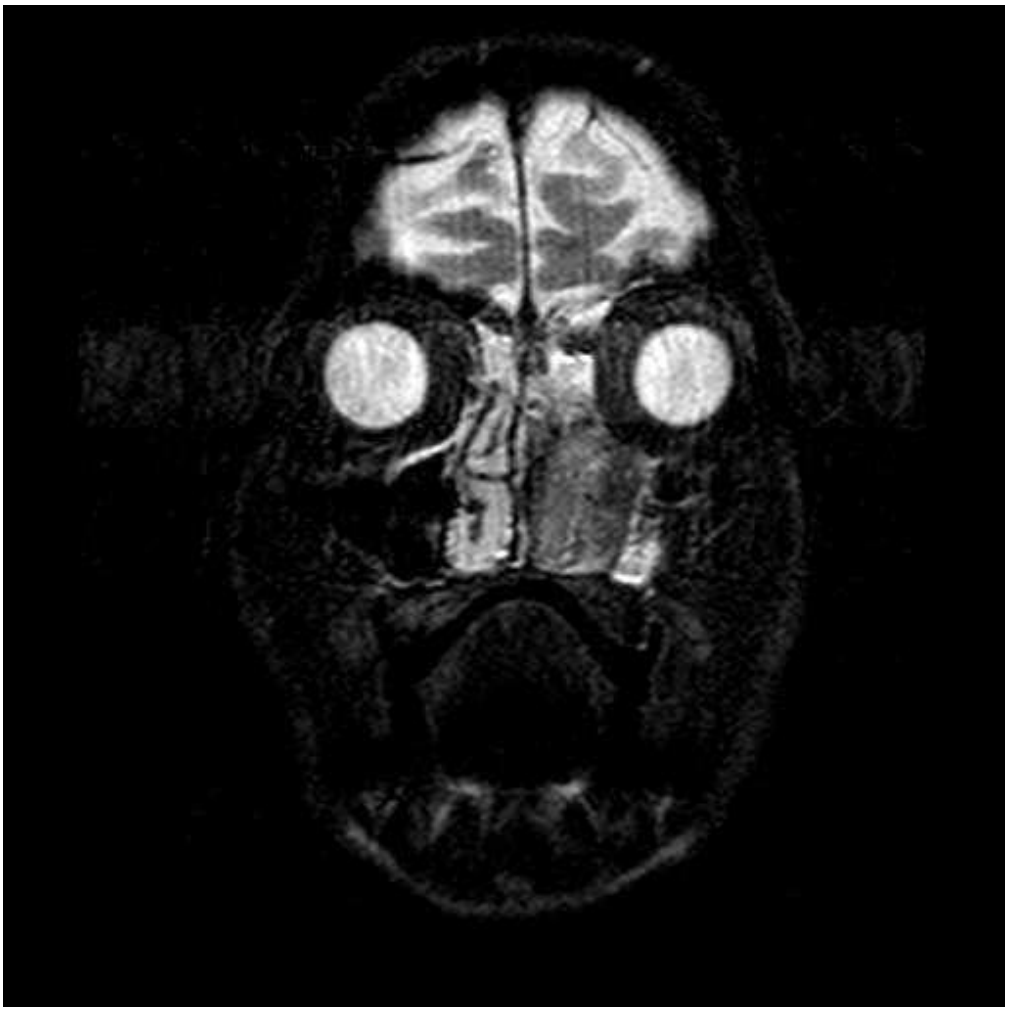

Description: Left nasal cavity lesion with well-defined margins and no intraorbital extension. **Origin:** Ospedale maggiore Lodi, unità operativa radiologia

Figure 7

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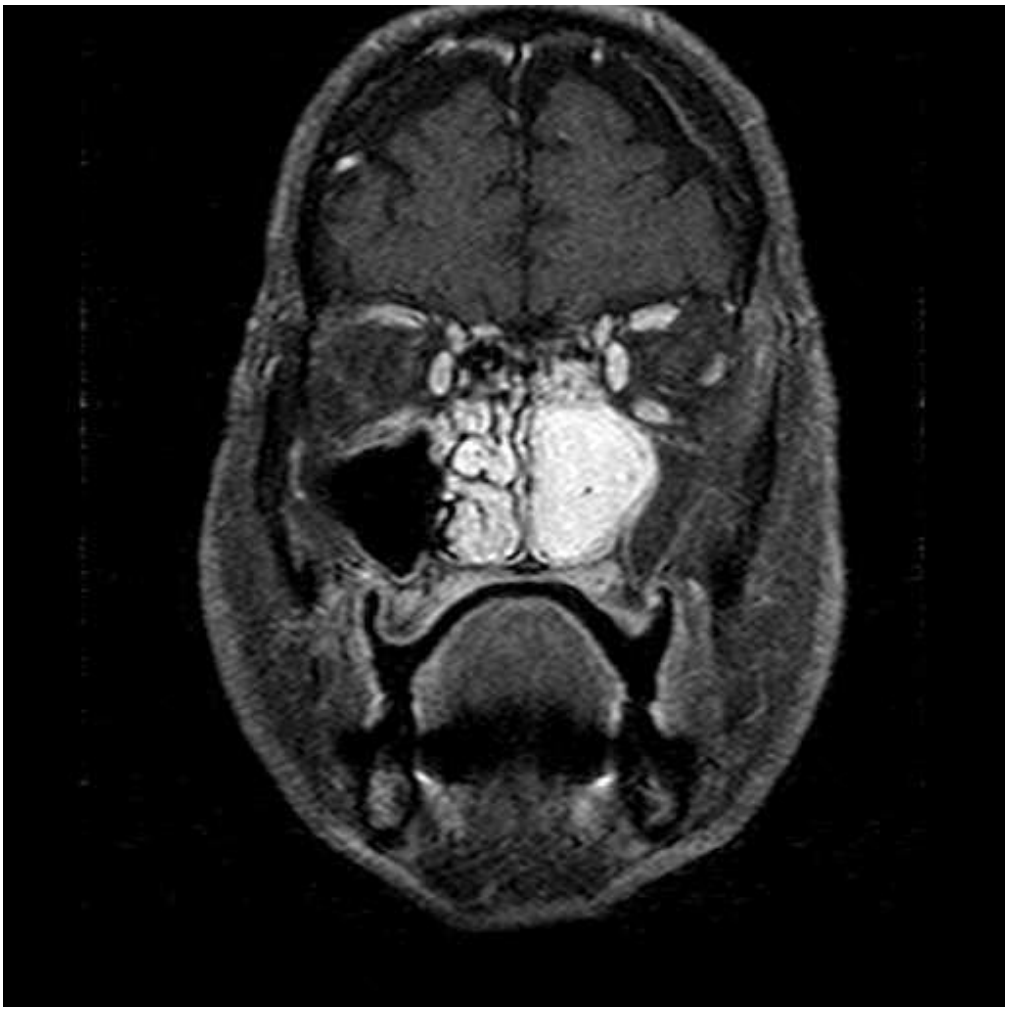

Description: The left nasal mass demonstrates avid, homogeneous post-contrast enhancement.
Origin: Ospedale maggiore Lodi, unità operativa radiologia