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Cementoossifying fibroma of the paranasal sinuses: A review of two cases

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Abstract

Cementoossifying fibroma (COF) of the paranasal sinus is a rare benign fibroosseous tumour arising from the periodontal membrane. It contains multipotential cells capable of forming cementum, lamellar bone and fibrous tissue. Cementoossifying fibroma peaks in the third and fourth decades and occurs more frequently in women than in men. Occasionally COF may grow aggressively and extend to involve the orbits and skull base, resulting in serious cosmetic and functional problems. We present CT and magnetic resonance imaging (MRI) findings of two young adults with cementoosifying fibroma of the paranasal sinuses who presented with progressive proptosis and facial deformity. Previously unreported correlations with Cerebral Angiography and MR spectroscopy are discussed.

Keywords: Cementoossifying fibroma; Paranasal sinus; Magnetic resonance imaging; Cerebral angiography

1. Introduction

Cementoossifying fibroma (COF) of the paranasal sinus is an uncommon benign fibroosseous tumour arising from the periodontal membrane. It contains multipotential cells capable of forming cementum, lamellar bone and fibrous tissue [1,2]. Occasionally cementoossifying fibroma may grow to a massive size and extends to involve the orbit and skull base causing serious cosmetic and functional problems [3]. The aggressive nature of this tumour may resemble malignant lesions such as fibrosarcoma and osteosarcoma which can give rise to a diagnostic challenge.

We present CT and magnetic resonance imaging (MRI) findings in two young adults with cementoosifying fibroma of the paranasal sinuses who presented with progressive proptosis and facial deformity. Previously unreported correlations with cerebral angiography and MR Spectroscopy are discussed.

2. Case report 1

A 19-year-old man presented to his family physician with gradual right eye proptosis of 1-year duration and progressive right nasal obstruction that had been continuing for 4 months. There was no history of epistaxis or any visual disturbances. Clinical examination revealed a large papillomatous smooth mass arising from the middle meatus causing deviation of the posterior portion of the nasal septum. There was proptosis of the right eye with fullness on the right side of the face. Extraocular muscle movements were normal.

An elective contrast enhanced axial CT scan of the paranasal sinus was performed (GE Lightspeed 16, GE Medical System, Milwaukee, Wisconsin, USA), with 80 ml of Iopromide 300 mg/ml (Ultravist 300, Schering AG, Berlin, Germany). The scan revealed a heterogeneous vascular calcified soft tissue mass, measuring 5.2 cm × 6.0 cm × 5.3 cm occupying the right maxillary sinus and nasal cavity causing expansion of the right medial orbital wall and erosion of the lamina papyracea. Coronal reconstructed CT showed the tumour mass extending superoanteriorly into the right ethmoidal sinus with associated erosion of the cranial base (Fig. 2.1). Proptosis of the right globe was present. A ten-

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Fig. 2.1. Case 1: reconstructed CT image in coronal plane showed a heterogeneous vascular calcified soft tissue mass occupying the right maxillary sinus and nasal cavity, extending superoanteriorly into the right ethmoidal sinus with associated erosion of the cranial base.

tative diagnosis of extracranial sinonasal meningioma with a differential diagnosis of sarcoma was made at the time. Juvenile angiofibroma was considered less likely as this tumour usually arises from the nasopharyngeal space, characteristically causing widening of the pterygopalatine fossa with anterior bowing of the posterior antral wall. The long-standing history and insidious behaviour of this tumour however did not fit the diagnoses of either osteosarcoma or chondrosarcoma.

Magnetic resonance (MR) imaging examination using the Siemens Magnetom Vision (1.5 Tesla) demonstrated the mass to be isointense to muscle on T1-weighted images and low signal intensity on T2-weighted images with vivid enhancement seen on post-gadolinium images (Fig. 2.2). MR Spectroscopy of this mass showed a high alanine peak, which was suggestive of a meningioma (Fig. 2.3). MR angiogram using the time of flight sequence (2-D TOF) demonstrated dilated feeding vessels from the right external carotid and the right ophthalmic arteries.

Cerebral angiogram showed marked tumour blush which was supplied by the right ophthalmic artery, right maxillary and right facial artery (Fig. 2.4). These vessels were selectively cannulated and embolized with (polyvinyl alcohol 150–200 μm) particles. Satisfactory devascularization of tumour was achieved prior to surgical resection.

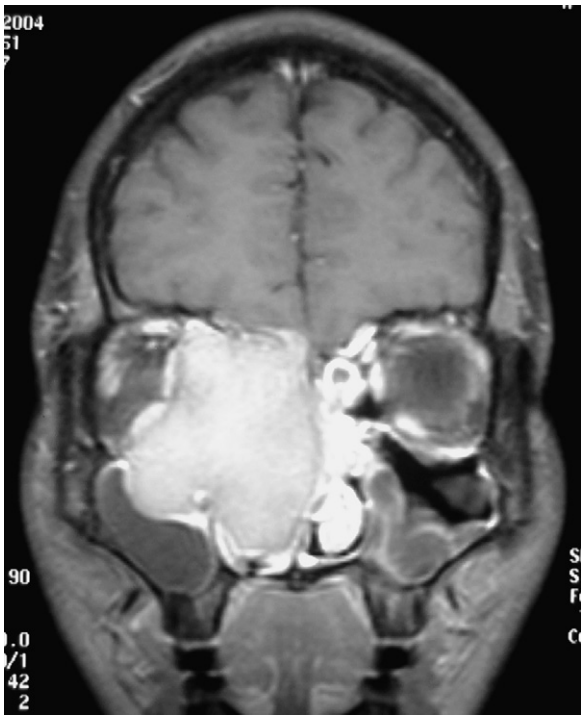

Fig. 2.2. Case 2: post-gadolinium magnetic resonance image in coronal plane demonstrated a vividly enhancing soft tissue mass in the right maxillary sinus and nasal cavity causing expansion of the right medial orbital wall and erosion of the lamina papyracea.

3. Case report 2

A 24-year-old lady presented to the ENT clinic with a history of progressive worsening nasal blockage for 6 months associated with blurring of vision. Clinical examination revealed a smooth solid mass arising from the lateral wall of the nasal cavity.

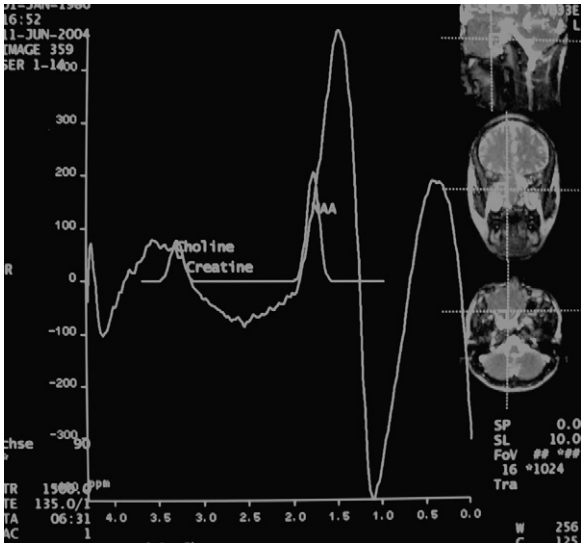

Fig. 2.3. Case 1: MR Spectroscopy of this mass showed a high peak at 1.5 ppm, which was suggestive of a mass consisting of high alanine component.