Paediatric pyogenic granuloma presenting as a unilateral nasal polyp*

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SUMMARY

The presence of a rapidly growing intranasal mass in a child is an alarming clinical sign that requires adequate clinical and radiological assessment and prompt histological diagnosis.

We present two cases of children with unilateral intranasal pyogenic granulomas. There is only one previous report of this histological diagnosis in the nasal cavity in children. Pyogenic granuloma of the nasal cavity is rare. Pyogenic granuloma should be included in the differential diagnosis of an intranasal mass in the paediatric age group.

Key words: pyogenic granuloma, nasal cavity, children, unilateral

INTRODUCTION

Granuloma Pyogenicum, also called granulation tissue type haemangioma, is a lesion of uncertain neoplastic nature and is considered a polypoid form of capillary haemangioma. About 30% of these lesions develop after trauma, growing rapidly to reach a maximum size of 2 cm within a few weeks (Schoen, 1994). These lesions occur mainly in the skin but also can develop in mucosal membranes of the oral cavity and conjunctivae. In the nasal cavity these lesions can appear during pregnancy (Granuloma Pyogenicum Gravidarum) (Lance et al., 1992). According to our literature search there is only one previous report of pyogenic granuloma in the nasal cavity in children. We report the cases of two children who developed intranasal pyogenic granulomas.

CASE REPORTS

CASE 1.

L. F. a ten year old girl presented with a one month history of rapidly progressing right sided nasal obstruction. She had no significant past medical history except that her right Little's area had been cauterised a year previously for recurrent epistaxis.

She had no nasal symptoms in the intervening months. Anterior rhinoscopy revealed a large polypoidal mass occupying totally the right nasal cavity. The post nasal space was clear and the rest of the otorhinolaryngological examination did not reveal any abnormalities. Computed Tomography of the nose and sinuses demonstrated a soft tissue opacity extending from the nasal septum to occupy the entire right external nares. These appearances were those of an inflammatory lesion. All sinuses were clear (Figure 1).

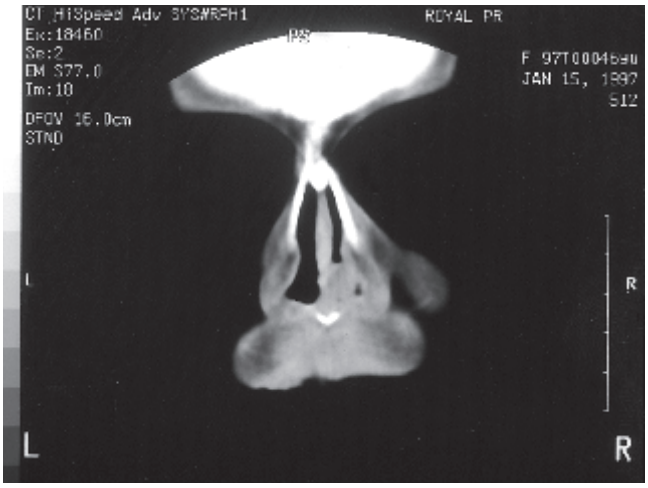

Figure 1. Coronal Computed Tomography of the nasal cavity demonstrating a soft tissue opacity extending from the nasal septum to occupy the entire right external nares.

She underwent an examination of the nose under general anaesthetic and excision biopsy of the lesion. The lesion was arising from the inferior aspect of the anterior septum and floor of the nasal cavity. Despite the size of the lesion this was removed endoscopically with very little haemorrhage. The apparent pedicle was cauterised with bipolar diathermy to ensure haemostasis. The nose was packed with Calcium Alginate dressing which was removed after four hours and the patient discharged home.

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The histological analysis showed this lesion to be a pyogenic granuloma measuring 2 × 1 cm. This was covered by respiratory epithelium and focally by stratified squamous epithelium. There was no evidence of intraepithelial or invasive neoplasia. No recurrence of the lesion was found at 6 months follow up.

CASE 2.

L.M. a ten years old girl presented with a two weeks history of recurrent unilateral epistaxis of variable intensity and frequency. At the time of the consultation she also reported a long standing complaint of right sided nasal obstruction and frequent fronto-occipital headaches. Anterior rhinoscopy revealed a large haemmorrhagic polypoidal mass totally occluding the right nasal cavity. The post nasal space was clear and rest of the oto-rhinolaryngological examination was normal.

Computed Tomography of the nose and sinuses demonstrated a large soft tissue mass extending from the septum to occupy the entire right nasal cavity. No evidence of bone destruction or periostial new bone formation was evident. There was also hypertrophy of the inferior turbinate in the right side. All sinuses were clear (Figure 2).

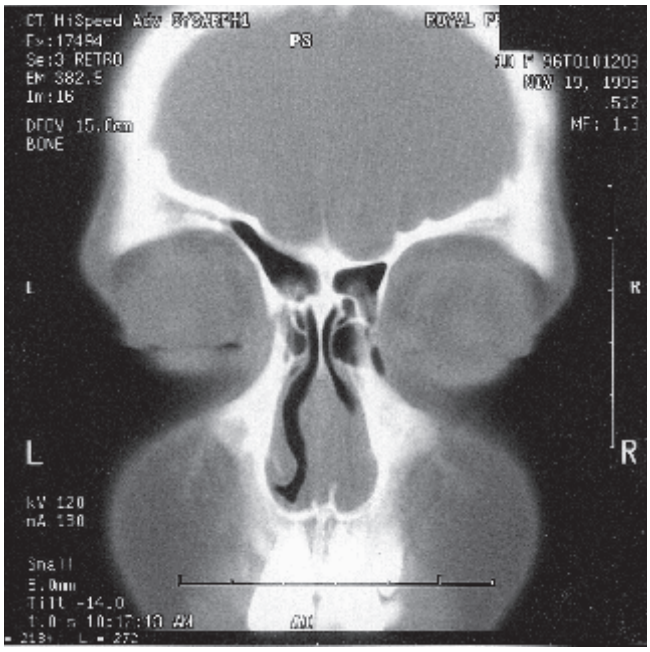

Figure 2. Coronal Computed Tomography of the nasal cavity and sinuses demonstrating a soft tissue opacity extending from the nasal septum to occupy the entire inferior half of the right nasal cavity.

She underwent examination of the nose under general anaesthetic and endoscopic excision biopsy of the lesion. The lesion was arising from the inferior aspect of the nasal septum. The apparent pedicle was cauterised with bipolar diathermy to ensure haemostasis. The nose was packed with Calcium Alginate Dressing which was removed after four hours and the patient discharged home.

The histology showed this lesion to be a pyogenic granuloma measuring 2.2 × 1 cm. This was much surface of ulceration and inflammation but there was no evidence of intraepithelial or invasive neoplasia . There was no recurrence at follow up in 6 months.

DISCUSSION

Pyogenic Granuloma is a lesion of uncertain neoplastic nature and it is currently considered a polypoidal form of capillary haemangioma. These masses most commonly appear as exophytic red nodules on skin or on gingival or oral mucosa. They are often ulcerated. One third of these lesions are said to develop after trauma, growing rapidly to reach a maximum size of 2 to 3 cm within a few weeks. Histologically the proliferating capillaries are separated by extensive oedema and acute and chronic inflammatory infiltrate, giving an appearance very similar to exuberant granulation tissue (Schoen, 1994).

Pyogenic granulomas are relatively common lesions in the paediatric population. In 1991 Patrice et al. reported a series of 178 children with pyogenic granuloma. Surprisingly 74 % of these patients had no history of trauma. Sixty-two per cent were located in the head and neck area of which 21.8 % were found in the mucous membranes of the oral cavity and conjunctivae. On these series only one lesion appeared located in the mucus membrane of the nose but there was no description of the exact intranasal location or symptoms (Patrice et al., 1991).

The occurrence of Pyogenic Granulomas in the nasal mucosa is relatively uncommon. The first patient with an intranasal Pyogenic Granuloma was described in 1940. A review of 280 cases of pyogenic granulomas revealed that less than 10% occurred in the nares (Kerr, 1951). Jafek reported 29 cases of which only two arose in the nose (Jafek et al., 1997). Mills reported 72 cases with this disease in the oral-nasal and laryngotracheal lesions and in this series 29% of these occurred in the nose (Mills et al., 1980). Lance in 1992 reported a case of Pyogenic Granuloma in the nasal cavity in a pregnant patient (Lance et al., 1992). El-Sayed and Al-Serhani have recently reported a series of 12 adult patients with this lesion arising from the nose. None of the patients were children although two female patients in these series were in the late teens (El-Sayed et al., 1997).

The occurrence of pyogenic granulomas in women has also been observed following the trauma of nose-piercing. This however occurred in the external aspect of the nose but not in the nasal mucosa (Premalatha et al., 1979)

The aetiology of Pyogenic Granuloma is unclear but is most commonly thought to be due to local trauma, though hormonal changes have been suggested particularly as a cause of Pyogenic Granuloma Gravidarum. Considering the frequency of nose picking in the paediatric population, it is perhaps surprising that more cases of intranasal Pyogenic Granuloma do not occur. Our patients both presented with a history of previous nasal symptoms. The first child had intranasal cautery for recurrent epistaxis one year previously and the second had a long history of nasal obstruction on the same side on which she developed the Pyogenic Granuloma. Epistaxis in children is very often associated with vestibulitis and an increase in nose picking. Both of our patients were possibly nose pickers.

There may be a direct relationship between the hormonal levels during pregnancy and puberty which might directly promote the growth of Pyogenic Granulomas. One could postulate that Pyogenic Granuloma arises due to rhinitis of pregnancy producing nasal obstruction with an increased propensity to digital

trauma. Mussali et al. reported ten cases of oral pyogenic granuloma occurring during pregnancy and oral contraceptive therapy. It has been demonstrated that there is an increase in the numbers of deeper and less mature cells in smears of palates and cheeks of women during menstruation and ovulation. There is also some evidence that there is more severe gingival inflammation that would be anticipated from the levels of bacterial plaque present during puberty. This would enhance the response to local irritation (Mussali et al., 1976).

Both of our patients were aged 10. Elevated oestrogen levels precede the onset of puberty in young females. It is well established that hormonal changes during the menstrual cycle and pregnancy may produce rhinitis. Hormonally related histological changes such as oedema, spongiosis, glandular hyperplasia and increased vascularity, have been observed in the upper respiratory mucosa of normal women during the hormonal cycle (Tappozada et al., 1981). Although high oestrogen levels have been considered to cause nasal congestion during the menstrual cycle, this is still a controversial issue,with conflicting reports (Ellegard et al., 1994, Tappozada et al., 1981). It is possible that our patients were experiencing a prepubertal hormonal surge which might have predisposed them to the same changes that precipitate Pyogenic Granuloma Gravidarum. The oestrogen elevation during puberty is however as far lower than the thoushand-fold increase that occurs in the pregnancy and so this is speculation at best (Weissman et al., 1993)

The occurrence of a unilateral rapidly growing intranasal mass in children is an alarming clinical sign. The differential diagnosis of these lesions includes; meningoenchephaloceles, gliomas, fibromas, nasopharyngeal cysts, polyps, mucoceles, capillary haemangiomas and lipomas. It is therefore necessary to have an accurate radiological assessment prior to surgical intervention, to exclude intracranial connection or extension (Morgan et al., 1990). Computed Tomography and Magnetic Resonance are essential imaging tools in the clinical evaluation of such lesions. In both of our cases there was a large soft tissue mass occupying most of the nasal cavity with no bony erosion or other radiological features suggestive of malignancy.

Nasal polyps can occur in children. It is a common phenomenon in cystic fibrosis but they can also occur in the paediatric population especially in the presence of non allergenic eosinophilic rhinitis. A proportion of these polyps will be unilateral and larger anterochoanal polyps. These do not respond to steroid therapy and therefore require surgery (Albert, 1997)

Although pyogenic granulomas are reactive benign lesions there are unlikely to resolve spontaneously. Classically surgical excision has been the treatment of choice. These cases had complete surgical excision and bipolar diathermy to the base of the lesions, resulting in no evidence of recurrence after six months. Shave (intradermal) excision and cautery has also been tried, however this modality can lead to recurrence rates to up to 43% (Patrice et al., 1991). In 1988 Modica advocated the use of CO_2 Laser excision and vaporisation of Pyogenic granuloma of the tongue (Modica, 1988). In 1991 Goldberg et al introduced the use of the flashlamp-pumped pulsed dye laser in the treatment of paediatric pyogenic granuloma in the skin (Goldberg et al., 1991). Recently, Tay et al. and Gonzalez et al. have evaluated this treatment modality. Both authors reported success rates superior to 91%, with the lesions healing without scarring and excellent cosmetic results (Gonzalez et al., 1996, Tay et al., 1997).

In the paediatric population a rapidly growing polypoidal haemorrhagic intranasal lesion requires an thorough clinical and radiological assessment and prompt histological diagnosis in order to exclude the possibility of a malignant lesion. Pyogenic granuloma should be also considered in the differential diagnosis of children presenting with unilateral intranasal polypoidal lesions.

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