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PAROTID SWELLING IN CHILDREN;
OUR EXPERIENCE AT DEPARTMENT OF PAEDIATRIC SURGERY B.V. HOSPITAL BAHAWALPUR

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ABSTRACT... Objective: To describe the clinical and pathological presentation as well as treatment options of parotid swelling in children. **Design:** Descriptive case series study. **Setting:** Department of Paediatric Surgery Bahawal Victoria Hospital Bahawalpur. **Period:** From Nov2005 to Jul2007. **Material and method:** All patients of either sex below the age of 13 years presenting with parotid swelling were included in the study. Clinical presentations, preoperative investigations, operative procedures, histopathology reports, postoperative complications and further management (radiotherapy &chemotherapy) were recorded. **Results:** Twelve patients presented with parotid swelling. Commonest presentation was a lump over the parotid region (100%) & pain (25%). Majority of tumours were benign (50%). Vascular lesions outnumbered solid tumours. 4 patients (33.33%) had haemangioma 1 patient (8.33%) had cystic hygroma , one patient each of pleomorphic adenoma, mucoepidermoid carcinoma and Adenocarcinoma. **Conclusion:** Salivary gland lesions are most likely inflammatory in origin. Vascular tumours are common benign tumours than epithelial tumours in children. Superficial parotidectomy is the operation for benign tumours and total conservative parotidectomy for malignant tumours.

Key words: Parotid tumours, Parotidecomy, Pleomorphic adenoma, Facial palsy.

INTRODUCTION
Three pairs of major salivary glands and myriad minor salivary glands excrete saliva into the mouth. The largest pair, the parotid glands empty into the oral cavity next to the upper first molar via Stenson's ducts. Salivary glands produce the saliva used to moisten the mouth, Initiate digestion, and help to protect teeth from decay. Parotid gland diseases can be grouped as follows:

INFECTION
The most common parotid gland infection in children is mumps, it can also occur in adults[1]. Inflammation or infection may occur secondary to obstruction of a salivary duct by a stone. When this occurs, the parotid gland will swell during eating and then gradually subside after eating. Only to enlarge again at the next meal. Infection often develops in the abnormally pooled saliva,

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leading to more severe pain and swelling[2,3].

If untreated long enough, the glands may become abscessed[4]. Recurrent bouts of infection or inflammation may cause local strictures in the duct system. These small constrictions can decrease salivary flow, leading to further infection and pain[5].

Secondary infections of salivary glands from adjacent lymph nodes also occur. Many of these lymph nodes are actually located on, within and deep in the substance of the parotid glands. When these lymph nodes enlarge due to infection, they present as a red, painful swelling in the area of the parotid. Wind parotitis is due to blowing up balloons or playing wind instrument[1,6].

TUMOURS

Non-epithelial tumours overall constitute less than 5% of all salivary gland neoplasm, but in children they represent more than 50% of all tumours. These include, hemangioma and cystic hygroma. Hemangiomas are classified into capillary and cavernous type. The congenital capillary hemangioma is the predominant subtype in the first year of life and noticed shortly after birth. They are unilateral, non-capsulated, compressible, lobulated lesions and common in girls. Rapid enlargement can occur. Cavernous haemangioma is seen in older children[7-10]. Primary benign and malignant epithelial parotid tumours usually present as painless enlargement of these glands. Benign parotid tumours like pleomorphic adenoma usually grow slowly over months. Malignant tumours can grow quickly, are painful and can cause loss of movement of part or all of the affected side of the face[11-15].

Treatment

Treatment of parotid gland diseases falls into two categories: medical and surgical. Selection of treatment depends on the nature of the problem. If the disease process relates to the obstruction of Stenson's duct and subsequent infection due to stone or stricture, remove the stone, dilate the duct, prescribe antibiotics and increase fluid intake. Abscess in parotid gland should be drained[3,4,16]. If a mass has developed within the salivary gland and surgery is necessary, great care must be taken to avoid damage to the facial nerve within this gland. Less aggressive tumours may be treated by surgery alone. More aggressive tumours may need to be treated by a combination of surgery and radiotherapy, but despite successful local treatment about one half of patients subsequently develop metastatic disease[1, 7,12,14,18-20].

PATIENTS & METHODS

Twelve patients of parotid swelling below 13 years of age of either sex were included in this study from Nov 2005 to July2007. Diagnosis of parotid gland disease depends on proper history taking, physical examination and laboratory investigations. The treatment of parotid swelling was tailored depending on the disease. In case of obstruction of duct due to stone, opening of Stenson's duct in mouth was probed and dilated and the stone was removed. Parotid gland abscess was treated with incision and drainage and antibiotics according to culture and sensitivity.

In case of tumors, a CT scan or MRI (magnetic resonance imaging) was performed. Fine needle aspiration cytology was also done. The treatment protocol was superficial parotidectomy for benign lesions of the superficial lobe. Total conservative parotidectomy was done in case of benign lesion of deep lobe and malignant lesion of either lobe without facial nerve involvement. Radiotherapy was given to the patients where the disease turned out to be malignant. All the patient were followed up to 6 months after the surgery and asked to report back if any problem occurred related to the operation.

RESULTS

AGE AND SEX

Total twelve patients with swelling in parotid region were included during the period of Nov 2005 to Jul 2007. Out of these 5(42.67%) were female and 7(58.33%) were male. The male to female ratio was 1.4:1(Table I). The age ranges from 4 month to 13 years with the maximum patients 8(66.67%) falling in the age group 4 to 8 years (Table II).

Table-I. Sex distribution		
Sex	**No of pts.**	**%age**
Male	7	58%
Female	5	42%
Total	12	100%

Table-II. Age Distribution		
Age	**No pf pts**	**%age**
0-2 years	2	16.67%
2-4 years	2	16.67%
4-8 years	8	66.66%

CLINICAL PRESENTATION

The commonest presentation was swelling or a lump in the parotid region (100%). Majority of patients had painless swelling (75%). Only 3(25%) Patients had severe pain and fever of which two had parotitis and one had abscess in parotid gland. One patient presented with facial nerve palsy (8.33%). The most common finding on clinical examination was a soft to firm non tender lump of variable size in the parotid region (Table III) Definitive histological diagnosis was established postoperatively.

TREATMENT AND COMPLICATIONS

Superficial parotidectomy was performed in 6 patients (50%) of benign tumors. Total parotidectomy with sacrifices of facial nerve was performed in 2 patients (16.67%) in malignant tumors. They were also given adjuvant postoperative radiotherapy. Parotid abscess was treated by incision and drainage, antiseptic dressing and antibiotics according to culture and sensitivity. Anti-tuberculous chemotherapy was given to one patient. Medical treatment was offered to two patients of mumps. Temporary facial nerve weakness was the most common problem in 5 patients (41.67%) which recovered without any specific treatment within two months. Permanent facial nerve weakness in three patients (25%) out of which facial nerve involvement by malignant parotid tumor in two patients and facial nerve damage by injection sclerotherapy of hemangioma parotid in one patient. Patients with wound infection, hematoma and seroma were dealt with conservative management. None of the patients in the series developed Frey's syndrome or parotid fistula.

Table-III. Clinical Presentations		
Clinical feature	**No of pts**	**%age**
Swelling	12	100%
Pain & fever	3	25%
Facial nerve palsy	1	8.33%
Neck lymph node	1	8.33%

The most common parotid swelling in our study was due to non-epithelial (vascular) tumour i.e 5 patients (41.67%). Next common cause of parotid swelling was epithelial tumour i.e. 3 patients (25%). Two patients (16.67%) had mumps. One patient (8.33%) had tuberculosis (Table IV).

Table-IV. Parotid Swellings (different diagnosis)		
Diagnosis	**No of pts**	**%age**
Mumps	2	16.67%
Partoid abscess	1	8.33%
Tuberculosis	1	8.33%
Hemangioma	4	33.33%
Cystic jugrp,a	1	8.33%
Pleomorphic adenoma	1	8.33%
Mucoepidermoid tumor	1	8.33%
Adeno carcinoma	1	8.33%
Total	12	100%

DISCUSSION

Salivary gland lesions in childhood are most likely to be inflammatory in origin, most commonly mump[1,5]. In our study only two patients (16.16%) presented with mumps as the large number of patients are being managed by

paediatritions. They had bilateral parotid swelling, pain and low grade fever. Acute suppurative infection of salivary gland is rare but may occur more frequently in preterm newborns[3,4]. One patient (8.33%) presented with unilateral parotid abscess in our study. Clinically, parotid suppuration is characterized by enlargement of one or both salivary glands, systemic symptoms and purulent discharge from Stenson,s duct. There is erythema of overlying skin. Sialactasis play an important role in the causation of sialadenitis. Lack of expected improvement and presence of increasing fluctuation needs incision and drainage[4,5]. One patient (8.33%) with unilateral swelling in parotid region was diagnosed as tuberculosis lymphadenitis on incisional biopsy in our study. He was given anti-tuberculous chemotherapy.

The majority of paediatric salivary gland tumors found in parotid gland was benign. Out of 12 patients with swelling in parotid region 8(66.67%) patients had parotid tumor[9,17]. Tumour may arise from any structure or cell or arise within the neural tissue contained within salivary gland[21]. The most common benign neoplasm of salivary gland is haemangioma[8]. In our study 4(33.33%) patients had haemangioma and one (8.33%) patient had cystic hygroma. It often occur in the parotid gland and extend into neck. Ultrasonography often demonstrates compresable vascular space with ill-defined margins. These may have complex honeycomb appearance. Doppler study has the ability to reveal the presence and type of blood flow. Color Doppler study helps to detect the perfusion in the haemangioma and confirm the vascular nature of the lesion and help to differentiate it from cystic hygroma[6,12]. Infantile haemangioma in parotid gland respond to pharmacological treatment in the similar manner as haemangioma in other location . Superficial parotidectomy with preservation of facial nerve was done for the benign non-epithelial tumours[14,18,20,22].

Out of 8 patients with parotid tumours, 3(25%) patients had epithelial tumour. The most common benign non-vascular tumour is the pleomorphic adenoma. It is never associated with enlarged cervical lymph node. After resection, tumour has a tendency to recur locally. One (8.33%) patient was diagnosed as pleomorphic adenoma in our study. Schuler and McCabe found that 73% of salivary gland tumour found in parotid gland and that 63.3% of these were pleomorphic adenomas[20]. Kessler and Handler noted 15 salivary gland lesions in children's in a nine year period in Philadelphia[17]. The 7 benign tumours seen were all pleomorphic adenomas and 8 were of malignant histology; out of these, 5 mucoepidermoid and 3 acinic cell carcinoma. But in our study only one case (8.33%) of pleomorphic adenoma was seen.

Lipomas in the salivary gland are often oval or elliptical masses with well defined margins with the typical striped and feathered echo texture and are more echogenic than the other salivary gland tumours[2,11]. No case of lipoma was reported in our study period.

Malignant tumours more often occur in older children and adolescents[7,10,14]. Mucoepidermoid carcinoma was diagnosed in one patient (8.33%) in our study. It is most common low grade tumour of the salivary glands. Adenocarcinoma was diagnosed in one patient (8.33%) in our study.

Complications following parotidectomy, including Frey's syndrome, facial nerve paralysis, sialoceles, and parotid fistula have been well documented[13,15,18,18,22]. Temporary facial nerve weakness was the most common problem, 5 patients (41.67%) which recovered without any specific treatment within two months. One patient already had facial nerve palsy on presentation due to injection sclerotherapy for haemangioma of parotid in the past. In addition two patients (16.67%) developed facial nerve palsy post operatively; one of these was operated for recurrent parotid tumour and other had facial nerve involved by the tumour (mucoepidermoid). Patients with wound infection, hematoma, and seroma were treated conservatively. No patient in the series developed Frey's syndrome, parotid fistula, skin flap necrosis etc.

Post operative radio therapy should be reserved for high grade malignancies, for microscopic residual disease and for salivary gland malignancy with aggressive histological features such as perineural invasion, local soft tissue extension. It probably confers some survival advantages in high risk patients[14,18]. Tumour size, histological

appearance, TNM stage, facial nerve dysfunction and pain from the face or neck seem to be significant prognostic indicators for patients with primary parotid carcinoma[15]. Long term survival is determined primarily by tumour characteristics, namely clinical stage and grade. Patients with more aggressive tumours may also need an operation to remove the lymph glands on the same side of the neck and this operation is known as Radical Neck Dissection[9,11,13,19,21].

CONCLUSION

Salivary Gland Lesions are most likely inflammatory in origin, commonly seen is mumps infection. Acute suppurative infection of salivary gland is rare but may occur. Secondary infections of salivary glands from adjacent lymph node may also occurs.

The majority of parotid gland tumors in children are benign. Non-epithelial or vascular tumours, are common benign tumours in children. They represent more than 50% of all tumors. These include haemangioma and cystic hygroma. Benign and malignant epithelial parotid tumours can be diagnosed by their clinical presentation. Superficial parotidectomy is the operation of choice for benign tumours both epithelial and non-epithelial. Facial never can be saved in total conservative parotidectomy for benign tumours and early malignant tumours. Patients with high grade lesions with facial weakness from malignant infiltration and those with lymphatic metastasis have a significantly worse prognosis than those without. Patients presenting post operatively with gross residual tumour or recurrence after surgery should be considered for trials of more aggressive treatment with combined chemotherapy or altered fractionation schemes of irradiation.

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A slave is one who waits for someone to come and free him.

Helene Johnson