ETIOLOGY AND PATTERN OF SWELLINGS IN MANDIBLE AND MAXILLA

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ABSTRACT

Objective: To determine the etiology & pattern of swellings in the mandible and maxilla.

Design: A descriptive study.

Place and Duration of Study: This study was conducted at Oral & Maxillofacial Surgery Dept, Armed Forces Institute of Dentistry Rawalpindi for two years from December 2004 to December 2006.

Patients and Methods: Three hundred and fifty patients with swellings in the jaws reporting to AFID were included in this study. After history, clinical examination and radiographic evaluation, patients were registered. All patients whether admitted to hospital or treated as outdoor patients in oral surgery clinic were included. Swelling of the parotid region, nasal and para nasal sinuses and neck were not included.

Results: In majority 131 (37.42%) the patients were of age between 21 to 30 years (mean 25.5 years). Males were affected more than females with ratio 1.3:1. The most common swellings found were inflammatory which accounted for 138 cases (39.42%) due to odontogenic reasons i.e. caries and non vital teeth. The most frequent site involved was mandible which accounted for 202 cases (57.71%). In 111 cases (31.71%) the treatment modality used was incision & drainage followed by antibiotics.

Conclusion: Caries and non-vital teeth were cause of the most common inflammatory swellings. The predominant site of swellings was the mandible. Every person must visit a dentist for oral examination six monthly so that early lesions in mandible and maxilla can be detected and treated more conservatively.

Keywords: Cystic, Enucleation, Marsupialization, Neoplastic, Odontogenic

INTRODUCTION

The jaws have been frequently referred to as an area of surgical romance because of the complexity of disease entities they contain and the challenges they pose to the surgeon. Swelling is a cardinal sign of all inflammatory, cystic and neoplastic diseases of the jaw caused by hypertrophy, hyperplasia, neoplasia and pooling of fluids[1].

Inflammatory swellings are placed at the top in order of frequency. They are of short duration and have all the signs of inflammation. They are caused by mechanical and chemical trauma, radiation injury, exposure to cold and heat, infections & immunological mechanisms[2].

Smellings in form of cysts may be in bone or soft tissues and may be odontogenic or non-odontogenic in origin. The commonest cysts of the jaw are odontogenic and are derived from the epithelial cell rests of Malassez and remnants of dental lamina. Their treatment is necessary because of esthetics, risk of transformation into malignancy, and hindrance in function[3].

Benign tumors are generally encapsulated, slow growing with no metastasis and the tumor cells resemble the parent tissue. Malignant tumors produce ill effects such as metastasis, mechanical pressure, obstruction, destruction of tissue, and haemorrhages. They are rapidly growing with clinical features like, cochexia, pain, thrombotic and heamatological complications. Age, sex, social class and hereditary factors contribute to the incidence of various types of tumors as do external environment, nutrition, occupation, cultural and religious customs and racial constitution. Cancer of lip is common in elderly, white, pipe smokers and agricultural workers. Cancer of the oral cavity is common amongst South Asians who indulge in the habit of betel nut chewing, smoking and alcohol consumption[4].

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Clinically, swelling of the jaw may be mimicked by inflammatory lesions like pyogranulomatous swelling in the submandibular region, or as cystic swellings like congenital dermoid cyst of the tongue[5,6] or neoplastic swellings of the floor of the mouth[7]. Some of the lesions may have the clinical characteristic of several entities and differential diagnosis should be made with final diagnosis confirmed by histopathological examination[8,9].

This study was planned determine the various types of swellings, and to have some insight into their possible etiological factors, clinical presentation and treatment.

PATIENTS AND METHODS

Three hundred and fifty patients reporting to AFID with complaints of swelling in the jaw from December 2004 to December 2006 were selected. All indoor and outdoor patients of both genders were included. Parotid, nasal, para-nasal sinuses and neck swellings were excluded.

After history, clinical examination and investigations; patients were registered according to the proforma. The radiographs commonly used included Orthpantomogram (OPG) and para nasal sinuses (PNS) views. Intra-oral radiographs such as periapical and occlusal views were used for swellings of periapical and symphyseal area.

Statistical package SPSS version 10 was used to analyze data. Descriptive analysis was used to determine mean, percentage, and ratio.

RESULTS

During two years, 350 patients with different types of swelling were registered and treated. The youngest patient at the time of registration was of 06 months, while the oldest one 70 years of age. Mean age was 25.5 year (S.D±1.37) (Fig). Out of 350 cases 131(37.42%) patients were between the ages 21-30 years. Only 38 (10.85%) patients were less than 20 years and 11(3.14%) patients were more than 60 years of age. One hundred and ninety seven (56.3%) patients were males with a male to female ratio 1.3:1.

The most frequent site of swelling was the mandible 202(57.71%) cases and the maxilla was the site in 148 (42.30%) cases. In the mandible, 66 swellings were inflammatory, 45 were present in molar region, 21 cases in symphysis and parasymphysis region. Cystic swellings were seen in 70 cases out of which 50 were in ramus and body, 20 in symphysis and parasymphysis area. Neoplastic swellings were 49 cases, 38 were found in posterior area and only 11 in the anterior area. Rest of the cases (17) were of miscellaneous origin.

In maxilla out of 148 cases, 60 inflammatory swellings were in anterior maxilla and 12 in molar region. Cystic swellings were 41, out of which 30 were present in anterior maxilla and 11 in posterior maxilla. In Neoplastic swellings, 22 cases were in molar and palate region and 8 cases in anterior maxilla. Five cases were of miscellaneous in origin.

The most common swellings were inflammatory which accounted for 138 (39.42%) cases; the most frequent cause was found to be caries and non vital tooth. Cystic swellings were found in 111 (37.71%) cases and neoplastic swellings in 79 (22.57%) cases followed by miscellaneous swelling in 22 (6.28%) cases (Table).

The treatment modalities used were decided keeping in view patient's diagnosis. Out of 350 cases; 111 swellings were incised and drained followed by antibiotics, 106 swellings were enucleated, 71 swellings were excised, 46 were resected, 6 cases received antibiotics and 5 cases were marsupialized. Three cases were given radiation therapy and 2 patients received chemotherapy. Out of resected 46 swellings; in 30 cases partial resection was done and in 16 total resection was done. Out of total resection in 10 cases supraomohyoid neck dissection was done and in 6 cases radical neck dissection was done.

DISCUSSION

Many of the acute inflammatory processes manifest in the oral cavity with evidence of acute infection by micro-organisms. Local disease may play an important role in the

production of acute infections of the oral and maxillofacial apparatus. The inflammatory swellings are usually the periapical abscesses resulting from necrotic pulp, caries and trauma. These swellings appear for a short duration but are painful. Patient seeks urgent intervention and prompt treatment[10]. The over-riding majority of swellings in these anatomical regions are found within the maxilla and mandible and are inflammatory in origin[2]. This was also found to be true in this study.

The radicular cyst is the most common cyst of the oral region. Incidence of the radicular cyst is 60-75% followed by the dentigerous cysts which account for 10-15% and keratocyst 3-7%. Most of the patients belong to low socioeconomic class with lack of awareness about disease e.g. patients get extraction of the teeth from quacks and do not report to the hospital until they get secondary infection or facial asymmetry due to enlargement of the cyst[11,12]. Dentigerous cyst is the most commonly found cyst in lower jaw and tends to grow to a large size. In a study by Benn and Altini, these were found more commonly in canine, premolar and molar areas[13]. Radiologically it appears as well defined unilocular lucent lesion almost always associated with the unerupted tooth. In young patients marsupilization of these cysts is considered to allow eruption of the teeth, but in recurrent cases, enucleation of the cyst is done[14,15]. Other cysts are relatively less common.

Of the neoplastic swellings odontogenic tumors are common. Some tumors have limited growth potential like hamartomas, whereas others possess all the attributes of true neoplasms. Ameloblastoma is common odontogenic tumor with local growth and deformity leading its early recognition[16]. A uni or multilocular radiolucency sometimes associated with an impacted tooth is seen radiologically. If detected earlier; curettage with marginal ostectomy is preferred treatment.

Most of the patients reporting to AFID were from northern areas where niswar is commonly chewed or dipped. It is one of main etiological factors in squamous cell carcinoma of oral cavity. Betel nut chewing is also a notorious predisposing agent commonly seen in southern part of country[17].

Squamous cell carcinoma is the most common malignant neoplasm usually seen in the buccal and alveolar mucosa, tongue and floor of the mouth. The lesion at the time of presentation is usually at TNM stage T2 or T3 with or without nodal involvement (N1 or 18 N0). The survival rate of oral cancer remains disappointingly low and relatively constant. It has just improved from 45% to 50% despite advances in early detection and treatment[19]. Many of the patients usually report at a stage where no surgical treatment is possible and only palliative radiotherapy and chemotherapy is considered[20].

Although histopathology and radiographic appearance help in diagnosing the lesions but the role of history and clinical examination cannot be overlooked. Certain simple procedures like aspiration, fine needle aspiration cytology, incisional biopsy and Orthopantomogram are cost effective methods to screen a lesion. CT scan, MRI and PET are the latest diagnostic facilities[21]. Nature of the lesion helps in determining the treatment plan as well. Alveolar abscess requires incision and drainage. Small cyst in a younger patient can be marsupialized whereas recurrent cysts have to be enucleated.

CONCLUSION

This study highlights that caries and non-vital teeth were the commonest cause of inflammatory swellings. The predominant site of swelling was the mandible.

Every person must visit a dentist for oral examination six monthly so that early lesions in mandible and maxilla can be detected and treated more conservatively.

The discontinuation of predisposing etiological factors like, alcohol, tobacco, pan and snuff can minimize the risk of transformation of benign conditions to malignant diseases.

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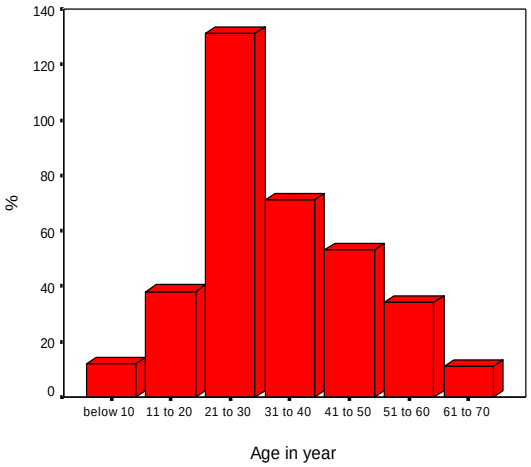

Fig: Distribution of patient according to age group (n=350)

Table : Distribution of patient according to type and site of swellings (n= 350)

S.no	Site	Number	Type	Number
1	Mandible	202	Inflammatory	66
			Cystic	70
			Neoplastic	49
			Misc.	17
2	Maxilla	148	Inflammatory	72
			Cystic	41
			Neoplastic	30
			Misc.	05