Case Report

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Peripheral Ossifying Fibroma (POF)iln Anterior Mandibular Gingiva : A Case Report of Relapse Gingival Growth.

Abstract:
Localized gingival growths are often presented as lesions that are triggered by hormonal or environmental factors. Although they are considered neoplastic, they can also be treated with the appropriate diagnosis. One of the most uncommon lesions is the POF. Several confusion has prevailed in the nomenclature of POF due to its variable histopathologic features. Detailed relevant medical history, clinical and histological information were recorded of the patient. This is a case presentation of a 35-year-old male with gingival overgrowth in the mandibular left canine-premolar region. Clinically, the lesion was asymptomatic, firm, pale pinkish in colour and sessile with a history of re-ccurance in a period of 60 to 100 days post surgical excision in same site .Surgical excision of the lesion was done followed by histopathologic confirmation with emphasis on the clinical aspect. Given the rate of re-currence for POF being 8-20%, close post-operative follow-up and proper oral hygiene maintainance and regular dental visits is required.

Keywords: POF; peripheral ossifying fibroma,ossifying fibroma, peripheral cemento- ossifying fibroma, peripheral fibroma with osteogenesis, fibroma with cement-genesis, peripheral fibroma with calcification, calcifying or ossifying fibroma epulis, calcifying fibroblastic granuloma.

Introduction:

Peripheral ossifying fibroma (POF) is a rare but usually significant overgrowth of cellular fibrotic tissue that's composed of one or more mineralised tissues like bone cementum or dystrophic calcification. Localized gingival growths are among the most common types of lesions found in the oral cavity. This is the most uncommon type of tumor that can be considered as a solitary, sesile or pedunculated, slow growing, focal, reactive, and non-neoplastic tumor like growth of the soft tissue, smooth textured or sometimes ulcerated, pink to reddish in colour, mostly firm in consistency, mostly non tender, that often arises from the interdental papilla and sometimes migration of teeth with interdental bone has been reported [1] ,these are few clinical manifestations of Peripheral ossifying fibroma (POF).[2] It accounts for 3.1% of all oral tumors and for 9.6% of gingival lesions.[3,4] Etiopathogenesis is uncertain, an origin from cells of the periodontal ligament has been suggested as result of irritating agents such as dental calculus, plaque, orthodontic appliance or faulty restorations, prosthesis ,etc.[5,6] It tends to occur in the 2nd and 3rd decades of life, with the peak prevalence between the ages of 10 and 19 years and females are more affected than males. the anterior maxilla is most common site involved.

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Size ranges from<1.5 cm in diameter even though lesions of 6 cm and 9 cm in diameter have been recorded.[7,8] Some synonyms used for POF are peripheral cemento- ossifying fibroma, ossifying fibro- epithelial polyp, peripheral fibroma with osteogenesis, fibroma with cement-genesis, peripheral fibroma with calcification, calcifying or ossifying fibroma epulis, calcifying fibroblastic granuloma.

An important clinical aspect of POF is its high recurrence rate which ranges from 8 to 45% .[3]

The purpose of this case study is to report the clinical, pathogenic features of POF with special emphasis on the histomorphologic features of mineralized tissue.

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World Health Organization [WHO] in 2005 classified bone fibrous lesion in three main categories that is ; fibrous dysplasia, (peripheral cementossifying dysplasia, focal cementossifying dysplasia, fibrous ossifying dysplasia)and ossifying fibroma neoplasia..[9] Reactive lesions can be seen mainly in craniofacial bones and there are two types central and peripheral.[10]

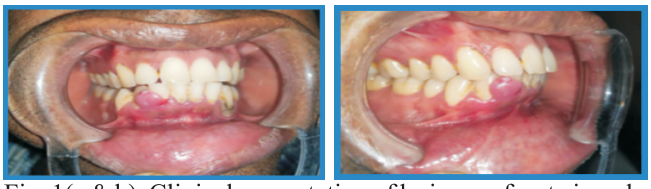
The first description of this pathology was made in 1844 by Shepard et all as in "alveolar exocytosis "later in 1972 Eversoll and Robin proposed the term POF.[11-13] Miller et all reported diffrence between immature and older lesions , immature lesions are soft and bleed easily and older lesions are firm and fibrotic in nature lesions can therefore be confused with pyogenic granuloma[14,15]

Case Description:

A 35 year old male patient, came to the department of periodontology and oral implantology at Hazaribagh College of Dental Science and Hospital, situated in Hazaribagh district, in Jharkhand state in India with complain of growth in gingival tissue. This was a reoccurred growth. The growth re-appeared within a period of 60 to 100 days post surgery in same site. The previous surgey was performed in different hospital. Patient described growth as painless and the patient denied any other symptoms medical history , and complete medical and hereditary history was recorded and was unremarkable.

Clinical Observation:

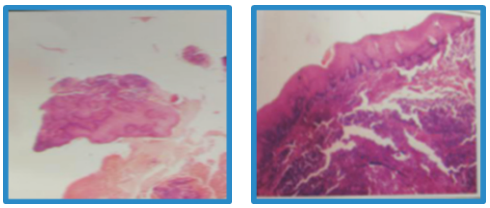
On physical examination no facial asymmetry was observed . Mass was located adjacent to the right lateral incisor and canine, measuring about 0.7×0.8 cm . It was painless, pinkish -white -brownish in color, firm in consistency without any ulcerations. Local factors could be seen easily. Radiographic information after x-ray investigation showed no changes in the bone structure between the right canine and the incisors. All blood investigations were performed and after collecting all data of clinical, radiographical and blood investigation records, we considered the following differentials diagnosis of giant cell peripheral granuloma and peripheral ossifying fibroma, pyogenic granuloma, irritation fibroma in order to be able to discriminate diagnosis ,an incision biopsy under local anesthesia was performed .



Fig; 1(a & b): Clinical presentation of lesion ; a: front view , b: right side view.

Histopathology:

Microscopic examination showed parakeratinized stratified squamous epithelium overlying the connective tissue stroma. Epithelium showed hyperplasia in some areas. Connective tissue stroma consist of highly cellular mass of proliferating fibroblast intermingled with fibrillar tissues . Fibrous connective tissue also consist of large and small trabeculae of bone. Extravasated RBC 's with chronic inflammatory cells infiltration were also noted . The overall features suggested a diagnosis of peripheral ossifying fibroma based on clinic-pathological correlation .



Fig; 2 (a & b) : Microscopic features :histopathological slides (40 ×)showing parakeratinized stratified squamous epithelium overlying the connective tissue.

Table 1: Clinico-pathological Corelation of Lesion

NAME- Anil kumar yadav **Age-** 35 years **Sex-** male **Address-** Hazaribagh **Opd no-** 440522
Requested from-Department of Periodontology and oral Implantology, Hazaribagh
Gross pathology : received single bit of tissue,white -brown in colour, firm, measuring about 0.7 × 0.8cm in dimensions.
Microscopic features: given hemotoxylin and eosin stained sections showed parakeratinized stratified squamous epithelium overlying the connective tissue stroma. epithelium showed hyperplasia in some areas. connective tissue stroma consist of highly cellular mass of proliferating fibroblast intermingled with fibrillar tissues . fibrous connective tissue also consist of large and small trabeculae of bone. extravasated RBC 's with chronic inflammatory cells infiltration were also noted .
Histopathological diagnosis : the overall features suggested a diagnosis of peripheral ossifying fibroma based on clinic- pathological correlation

After a successful diagnosis of POF, a periodontal treatment plan was made which involved patient education and motivation of proper oral hygiene instructions, oral prophylaxis for the patient was performed prior to a surgical

excision of lesion under local anesthesia . Scaling and root planing was performed and patient was recalled after one week for surgery. After one week, once the surgical room and instruments and dental chair was thoroughly sanitized ,sterilized and cleaned , surgery was performed under local anesthesia , surgical excision down to the periosteum were performed , no suture was required and after achieving haemostatis periodontal coe-pack dressing was placed.

The excised tissue was placed in 10% neutral buffered formalin in a jar and was sent for the histopathologic examination. . Patient was instructed well and was recalled for re-evaluation after 10 days.

Fig; 3: Surgical excision using scalpel and electrocautery method.

Fig;4 : Coe-pack dressing placed.

After 10 days of post operative visit, patient presented for reexamine of surgical site and follow up. Recovery or healing was excellent and patient has been told to be on a regular dental visit .

Fig; 5 ;(a&b):Healing of site : Post operative surgical site showing excellent healing.

Discussion:

POF is a focal, benign , reactive, non neoplastic tumor like growth of soft tissue that often arises from the interdental papilla. POF is an entity unlike central ossifying fibroma which is not the central counterpart of POF but is instead true neoplasm with significant growth potential.[6,16] gingival mucosa is constantly under irritation due to various factors such as local factors, plaque and calculus, masticatory forces ,food lodgement ,faulty restoration, ill -fitted prosthesis and other vast variety of microorganisms which might become pathogenic under altered conditions .Gingiva reacts to these irritants by forming a hyperplastic growth in the localized area.[17] Females are found to be more affected males , anterior maxilla seen more affected than mandible. Hormonal influences can play a major role in incidence of POF among the females increasing the occurrence in the second decade and declining after third decade. Size of POF has been recorded around 0.4 to 4.0 centimeters and generally the colors recorded are pink to white to brown, mostly firm in consistency with or without ulcerations. Histologically when bone and cementum like tissues are observed the lesions have been referred to as cement ossifying fibroma ,the term cement-ossifying has been referred to as outdated and scientifically inaccurate as on H&E staining it is difficult to differentiate between cementum and bone . Radiographic features of lesion may vary , underlying bone involvement is usually not visible on radiograph but in rare cases superficial erosion of bone can be noted . To confirm diagnosis of lesion ; histopathologic evaluation of biopsy specimen is mandatory .

Following features may usually appear during microscopic examination:

1. intact or ulcerated stratified squamous surface epithelium.
2. benign fibrous connective tissue.
3. fibroblast .
4. endothelial proliferation .
5. mineralized material consisting of mature lamellar or woven osteoid, cementum like material or dystrophic calcification.
6. acute or chronic inflammatory cells.[18]

Different treatment modalities include surgical excision by scalpel, laser or electrocautery.[19] The surgical excision including the involved periodontal ligament and periosteum is preferred treatment ,which was preferred and performed in this case also.

Conclusion:

POF is benign, slowly progressing with limited growth which is clinically difficult to diagnose so pathological biopsy confirmation is mandatory .complete surgical excision is required and preferred as only treatment and its recurrence rate is high so post operative follow up is mandatory.

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