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Fibroosseous Lesions of the Jaw: A Reviewof Classification Scheme

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Abstract: ***Fibroosseous lesions of the jaw are a group of poorly defined that affect the normal bones of the craniomaxillofacial region. Which is characterized by replacement of normal bone with fibrous tissue. Various classification systems have been put forward by different authors. The purpose of this present article is to propose the various classifications, which will enable to adopt uniform terminology and enable proper communication between the surgeons andthe histopathologist.***

Keywords: Craniomaxillofacial, Fibroosseous, Fibrous tissue

1. Introduction

Fibroosseous lesions of the jaw and craniofacial region are defined as the process in which normal architecture of the bone isreplaced by fibrous tissue containing varying amount of focus of mineralization. Some referred these lesions are neoplastic and some reported these lesions developed due to metabolic disturbance[1]. Fibro-osseous lesions (FOL) of the jaw represent a rare, benign group of lesions that share similar clinical, radiological, and histopathological features, hence represents a diagnostics challenge[4]. So proper categorization requires good correlation of the history, clinical findings, radiographic characteristics, operative findings, and histologic appearance[5]. They consist of different type of pathological disorders which includes bone dysplasia, inflammatory lesion, neoplastic lesions, and metabolic disease. These maxillofacial lesions cannot be diagnosed by taking incisional or excisional biopsy alone but the correlation of clinical and radiological features is very crucial for detecting these serious disorders. The aim of this review is to study the various classification systems given by various authors which will enable us to adopt a uniform terminology and improve communications between clinicians, pathologist and surgeons.

Classification Schemes of Fibro-Osseous Lesions:
The various Classifications systems proposed by authors are enumerated as below.

1) Charles Waldron Classification of the Fibroosseous Lesions of the Jaws (1985)
2) Working Classification of Fibroosseous Lesions by Mico M. Malek (1987)
3) Peiter J. Slootweg & Hellmuth Muller (1990)
4) WHO Classification (1992)
5) Waldron Modified Classification of Fibroosseous Lesions of Jaws (1993)
6) Brannon & Fowler Classification (2001)
7) WHO Classification of Fibroosseous Lesions of jaws (2005)
8) Paul M. Speight & Roman Carlos Classification (2006)
9) Eversole Classification (2008)

Charles A Waldron in 1985 classified Fibroosseous lesions into main groups on the basis of clinical behavior,histopathology and radiographic findings:[4]

1) FIBROUS DYSPLASIA
2) REACTIVE (DYSPLASTIC) LESIONS ARISING IN THE TOOTH BEARING ARE:
   - Periapical cemento osseous dysplasia
   - Focal cemento osseous dysplasia
   - Florid cemento osseous dysplasia
3) FIBRO – OSSEOUS NEOPLASMS
   - Cementifying fibroma
   - Ossifying fibroma
   - Cemento ossifying fibroma

In 1993, Waldron had reviewed the subject of benign fibro-osseous lesions (BFOL) of jaws, and suggested a modification of his earlier classification to overcome the demerits of his own classification.

4) Fibrous dysplasia
5) Cemento-osseous dysplasia
   a) Periapical cemento-osseous dysplasia
   b) Focal cemento-osseous dysplasia
   c) Florid cemento-osseous dysplasia
6) Fibro-osseous neoplasm
   a) Cementifying/ossifying / cemento-ossifying fibroma

Working Classification of Fibroosseous Lesions by Mico M. Malek (1987)[6]

Developmental Disorders:

1) Fibrous Cortical Defects (Non Ossifying Fibroma)
2) Fibrous Dysplasia ReactiveReparative Lesions
   - Traumatic Periosteitis
   - Periosteitis Ossificans
   - Osseous Keloid
   - Periapical Cemental Dysplasia & Florid Cemento-OsseousDysplasia
   - Sclerosing Osteomyelitis (Focal & Diffuse Type)
   - Osteitis Deformans

Fibromatosis
Desmoplastic Fibroma (Intraosseous Fibromatosis)

Neoplasms
1) Tooth Bearing Areas Only
   - Cementoblastoma
   - Periodontoma
2) Central
3) Peripheral
4) All Cranio-Facial Bones (Including Tooth Bearing Areas)
   - Osteoma
5) Trabecular
6) Compact
   - Osteoid Osteoma
   - Psammous Desmo-Osteoblastoma
   - Trabecular Desmo-Osteoblastoma

Peiter J. Slootweg & Hellmuth Muller (1990)[10]
In 1990 Peiter. J. Slootweg & Hellmuth Muller gave a classification that laid emphasis primarily on the histopathological features, and they underscore that this classification requires inclusion of adjacent normal bone to make diagnosis. However, in the absence of this, the clinical & radiological features have to be taken in to consideration.

Group I: Fibrous Dysplasia
Group II: Juvenile Ossifying Fibroma
Group III: Ossifying Fibroma
Group IV: Periapical Cemental Dysplasia & Florid Osseous Dysplasia
a) Central Giant Cell Granuloma
b) Aneurismal Bone Cyst
c) Solitary Bone Cyst (Traumatic, Simple, Hemorrhagic BoneCyst)

WHO Classification (Kramer et al., 1992)[9]
1) **Osteogenic Neoplasms**
   - Cemento-Ossifying Fibroma (Cementifying Fibroma,Ossifying Fibroma)

2) **Non-Neoplastic Bone Lesions**
   - Fibrous Dysplasia of Jaws
   - Cemento-Osseous Dysplasia
3) Periapical Cemental Dysplasia (Periapical FibrousDysplasia)
4) Florid Cemento-Osseous Dysplasia (Gigantiform, Cementoma, Familial Multiple Cementomas)
5) Other Cemento-Osseous Dysplasia
   - Cherubism (Familial Multilocular Cystic Disease of the Jaws)
   - Central Giant Cell Granuloma
   - Aneurismal Bone Cyst
   - Solitary Bone Cyst (Traumatic, Simple, Hemorrhagic BoneCyst)

WHO Classification of Fibro-Osseous Lesions of Jaws (Barnes et al. 2005)[7]
1) Ossifying Fibroma (OF)
2) Fibrous Dysplasia
3) Osseous Dysplasia
   a) Periapical Osseous Dysplasia
   b) Focal Osseous Dysplasia
   c) Florid Osseous Dysplasia
4) Central Giant Cell Granuloma
5) Cherubism
6) Aneurismal Bone Cyst
7) Solitary Bone Cyst

Brannon & Fowler Classification (2001)

1) **Osseous Dysplasia (OD) (Reactive)**
   a) Nonhereditary
   - Periapical
   - Focal
   - Florid

   b) Hereditary (Developmental)
   - Familial Gigantiform Cementoma

2) **Fibro-Osseous Neoplasm**
   - Ossifying Fibroma (OF)
   - "Juvenile", "Active" or "Aggresive" Variants of
3) **Fibrous Dysplasia**
   - Polyostotic FD
   - Monostotic FD
   - Craniofacial FD
4) **Giant Cell Lesions**
   - Central Giant Cell Granuloma
   - Aneurismal Bone Cyst
   - Cherubism
5) **Miscellaneous Benign Fibro-Osseous Lesions**
   - Cementoblastoma
   - Tori/Exostoses

Classification of fibro- osseous lesions of maxillofacial region by Paul M. Speight and Roman Carlos(2006).[1, 7]

Fibrous Dysplasia:
1) Monostotic fibrous dysplasia
2) Polystotic fibrous dysplasia
3) Craniofacial fibrous dysplasia

Osseous Dysplasia:
1) Periapical osseous dysplasia
2) Focal osseous dysplasia
3) Florid osseous dysplasia
4) Familial Gigantiform Cementoma

Ossifying Fibroma:
1) Convential ossifying fibroma
2) Juvenile trabecular ossifying fibroma
3) Juvenial psammomatoid ossifying fibroma

Eversole 2008 Classification[8]:

1) **Bone Dysplasia:**
   a) Fibrous dysplasia
   - Monostotic
   - Polyostotic
   - iii. Polyostotic with endocrinopathy (McCune-Albright)
   - iv. Osteofibrous dysplasia

   b) Osteitis deformans

- Pagetoid heritable bone dysplasias of childhood
- Segmental odontomaxillary dysplasia

2) Cemento-osseous Dysplasia:
- Focal cemento-osseous dysplasia
- Florid cemento-osseous dysplasia

3) Inflammatory/reactive processes
- Focal sclerosing osteomyelitis
- Diffuse sclerosing osteomyelitis
- Proliferative periostitis

4) Metabolic Disease: hyperparathyroidism

5) Neoplastic lesions (Ossifying fibromas)
- Ossifying fibroma
- Hyperparathyroidism jaw lesion syndrome
- Juvenile ossifying fibroma
- Trabecular type
- Psammomatoid type
- Gigantiform cementomas

2. Conclusion

Fibroosseous lesions of the jaw are difficult to diagnose. Correlation between the biological behavior of the lesion, clinical radiological and histopathological data is essential in reaching an accurate diagnosis.

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