CEMENTOSARCOMA, A new entity

Gülcin ERSEVEN, Dr. Med. Dent. (*) — Sedat, A. ÇÖLOĞLU, Dr. Med. Dent. (**) 

The tumors of cement origin are classified under four groups according to the classification of the WHO (9) 1966 and Tahsinoğlu (11), 1980.

1. Benign cementoblastoma (true cementoma)
2. Cementifying fibroma
3. Periapical cement dysplasia
4. Gigantiform cementoma

The above listed tumors are all of benign behavior. Up to now, there has been no mention of a malignant variety of any cement tumor. However, since all tumors are consisted of cells, it is only natural to find an atypical form of that individual cell.

The benign cementoblastoma first described in 1930 by Nornberg 7) is considered to be a true tumor among tumors of cement origin, we think that cementosarcoma should be a malignant variety of this tumor.

Although tumors of cement origin are usually found in middle aged, individuals under 25 years of age with a ponderation to males

(*) Chairman and Associate Professor of Pathology.
(**) Associate Professor of Oral Pathology.
than females and predisposition for the area between premolars and canines (5).

CASE

A.O., 21 year old male was complaining from an excessive lacrimation of the right eye, followed by a slight tumefaction in the maxilla. A persistent dental pain of the region forced the patient to refer to the doctor on the May 24th, 1980 who had the patient studied roentgenographically. The x-ray films disclosed a wide opacity in the maxillary sinus was visible. The lesion clearly extended towards the nasopharynx and to the oral cavity (fig. 1). All of these findings led to the diagnosis of a malignant tumor an the patient was hospitalized for an excisional biopsy. The diagnosis was made as an osteogenic sarcoma. A maxillectomy was performed (fig.2). Sometime during June and was turned over to the radiotherapy clinic for post operative on July 29th 1980. The x-ray films revealed a further destruction of the orbit, and the right eye of the patient had to be enucleated. After the patient recovered, he was given the file number 1176/1176 on September 29th 1980 and was exposed to chemotherapy and irradiation. After 3 month of such a therapy, control x-ray films of the chest and of the chemotherapy was still being employed at the time when this article was written.

Fig. 1: Roentgenogram of the lesion disclosed a wide opacity in the right maxilla and maxillary sinus, destruction of the neighboring bones.

— 119 —
This case was brought for discussion to the June 5th 1980 session of the Bone Tumors Registration Center of the Oncology Foundation. Upon the discussion that took place, the case was submitted to the Pathology Department of Denal Faculty where it was thoroughly investigated and compared with over 80 registered osteogenicsarcoma cases between 1971-1980 years. As a result the diagnosis was changed.

In the Pathology Department of Dental Faculty the slides prepared from the paraffin blocks revealed a highly cellular tumor. Tumor cells are of differing size and shapes. Some of these are fusiform or racquet-shaped cells with darkly stained eosinophilic cytoplasms and hyperchromatic nuclei while others are more plump. Mitoses and polymneucleated cells are highly abundant. Tumor cells are margingating around a rather large masses of a material generally deprived of cells. This material (cementoid) exhibits reversal lines in some areas, and centrally localized calcifications in others. The stroma of the tumor is rich of collagen fibers and exhibits a mixomatous appearance in some parts (fig. 3, 4).

The slides trained with masson’s trichrome and gomori silver impregnation (fig. 5) techniques reveals that collagen fibers run along the cementoid tissue and extend towards the surrounding
Fig. 3: Photomicrograph illustrating tumor cells which are different size and shapes, and some of them are around the rather large masses of cementoid tissue. The stroma of the tumor is rich in collagen fibers. (Hematoxylin and eosin stain. Magnification x 100).

Fig. 4: Higher magnification of the same tumor. Cementoid tissue exhibiting central calcification and surrounding with atypical cementoblast. Collagen fibers are abundant. (Hematoxylin and eosin stain. Magnification, x 250).

Fig. 5: The tumor showing that collagen fibers run along the cementoid tissue and extend towards the surrounding tissue. (Gomaris Silver Impregnation stain. Magnification, x 250).
tissues. Stroma is highly rich from the collagen fibers. The cemen-
toid tissue shows collagen characteristics when stained with each
of the above mentioned techniques.

A. small area ise covered with a gingival mucosa. There is also
a dental rout an primitive odontogen, epithelium visible in this area.

Dignosis: Cementosarcoma (Dept. of Pathology, Dental Faculty,
biopsy number 2568/1980).

Discussion

As pointed out earlier in this paper, the malignant tumors of
the cementum have been omitted in the various classifications of
odontogenic tumor (9, 11).

In 1976, Langdon (5) used the interrogative «Just how benign»
for the heading of his case report of a benign cementoblastoma,
and drew attention for their rapid growth of the tumor in a rather
short months interval. In his case the tumor started hear the root of
the first molar in the right mandibula exending anterioly to the
canine and posteriorly to the third molar of the same side, during 2
months. The tumor was resected enblocak and different pathology
departments interpreted the sample as «Benign cementetoblasto-
mas» or «Osteogenic sarcoma» and suggests that the performed
biopsy accelerated the growth via infection. However a review of
the x-ray films discloses a progresive expansion which is rather
difficult to evaluate as infection that thined the cortical bone the
bizarre appereane of cementoblasts are visible in the microphot-
ographs. In our opinion, this is cementosarcoma case.

Our case was a late one, therefore roentgenographically it was
not possible to show the connection of the initial tumor with the
dental roots although histologically the lesion was also present
around the radices.

In this type of tumors one should make a differential diagnosis
between osteogenic sarcoma and cementosarcoma. Although
rarely, osteogenic sarcoma can show jaw localizations (6). Micros-
copically, osteogenic sarcoma containa homogenous, pale pinkish
ostoid formation. These are usually anastomosing strutures with
atipical osteoblast lined around them (6, 10). Tahninoğlu (10) belives
that the osteoid formation in osteogenic sarcomas makes fine, thin cords rather than rough and thick structures, and it is unusual to find he vice versa. The atypical fusiform cells can also be found neighboring the area (6, 10). The eosinophilic material produced by the tumor cells in our case was thick, round shaped and contained reversal lines. Reversal lines are considered characteristic for cement (1, 3, 5, 8).

In our case, the calcifications in the tumoral tissue are reminiscent of the benign cementoblastomas, from the center of the cementoid material outwards. There were also remnants of uncalled tissue in the periphery of the cementoid is lets. These are also pathognomonic of cement (1, 5, 8, 9).

The importance of collagen fibers in the manufacture of normal cement is great. These fibers lie parallel to the surface of the radix (4). Çöloğlu and Tahsinoğlu (2), after staining the cement tumors with Mason's trichrome and Gomori's silver impregnation techniques, showed the presence of precollagen fibers surrounding the cement islets and being fringed outwards to the surrounding collagen tissue. When the same techniques were employed to our case similar findings were found in collagen and precollagen fibers. In the authors cases cementoid tissue were stained like collagen tissue (2) the same findings were verified in our case as well.

When the same training techniques were applied to the osteogenic sarcomas as control, we found out that the osteoid tissue was stained collagenwise, but with the absence of an increase of collagen fibers in either osteoid tissue is lest or the stroma in between.

We find our case an interesting one on the basis that it is a tumor unlisted in the odontogenic tumor classifications before, and since it is a first in the literature.

SUMMARY

A case which was proved to be a cementosarcoma, an unlisted entity is presented and discussed together with a review of the literature. The patient was 21 years old male, who had maxillectomy and enucleation of the right eye, because of a maxillary tumor. After then he was exposed to chemotherapy and irradiation. 3 months after such a therapy, control x-ray films of the chest and of the maxilla revealed no pathologic finding.
ÖZET

Tümörlerin sınıflamasında yer alaman yeni bir tümör "Sementosarkom" olgusu bildirildi.

Literatür tarandı, ilgili konu tartışıldı. 21 yaşında erkek hasta sağ maxillada tümör nedeniyle maxillektomi ve daha sonra enükleasyon uygulandı. Radyoterapi ve kemoterapi yapılan hastanın üç ay sonrası kontrollerinde maxillektomi bölgesinde ve akciğer grafilerinde patolojik bulgu saplanmadı.

L İ T E R A T Ü R


