

Imaging diagnosis

Case 447

4. Ameloblastoma

【Progress】

He received surgical resection of the tumor. Histologic examination revealed desmoplastic ameloblastoma.

【Discussion】

The human owns total 32 teeth; 16 teeth in maxillary bone and mandibular bone in each; 8 teeth in right upper hemi-lateral, right lower hemi-lateral, left upper hemi-lateral and left lower hemi-lateral, respectively. They are termed: anterior 2 teeth, incisors; third tooth, canines; the following two teeth, premolars; the last three teeth, molars.

Macroscopically, the upper part of tooth from the gingiva is called crown and the lower part from the gingiva, root. Microscopically, tooth crown is composed of enamel and dentin, while root is composed of cementum and dentin. Enamel continues to cementum. Inside the dentin, pulp including blood vessels and nerve is present.

There are common cystic lesions related to dental tooth in maxillary and mandibular bones: radicular cyst, dentigerous cyst, odontogenic kerato-cyst and ameloblastoma (1, 2). Of these, radicular cyst arises from inflammatory process or pore occlusion due to small foreign body. Dentigerous cyst and odontogenic kerato-cyst arise in the developmental process from epithelial to mesenchymal transforming (3). Dentigerous cyst contains relatively clear fluids, while odontogenic kerato-cyst contain keratin which is protein of skin components. Although these cysts are difficult for imaging diagnosis on CT to differentiate, MRI with diffusion weighted imaging plus apparent diffusion coefficient mapping should be useful for their differentiation, because keratin causes disorder of water molecules diffusion, inducing lowering ADC values, while dentigerous cyst does not (4).

Ameloblastoma is histologically identical to craniopharyngioma whose images are known to be composed of solid and cystic components with calcification (5, 6). Ameloblastoma arises in the process of transformation from epithelium that creates enamel epithelium to mesenchyme of dentine (3). The typical image findings of ameloblastoma are bubble-formed multi-cyst, solid component plus calcification. Ameloblastoma gradually grows and although distant metastases are rare, it is reported to recur after surgical resection, indicating ameloblastoma is local aggressive (5, 6).

In our case, the tumor gradually had grown for several years. Panorama radiograph of jaw demonstrates a cystic lesion in the right upper jaw (maxillary bone). The lesion is composed of low attenuation indicative of cyst, soft tissue attenuation indicative of solid tumor and scattered calcification. It grows expansively with bone destruction, indicative of local aggressive character. Histologic examination revealed desmoplastic ameloblastoma.

【Summary】

We presented a seventy-seven-year-old female whose right maxillary mass had grown for several years. The tumor composed of babbly cysts, solid parenchyma, calcification. Surgical resection revealed desmoplastic ameloblastoma. It is borne in mind that there are four kinds of common cystic lesion on dental panorama radiography or CT: radicular cyst, dentigerous cyst, odontogenic kerato-cyst, and ameloblastoma. Because odontogenic kerato-cyst contains keratin, it is useful to differentiate kerato-cyst from ameloblastoma or from dentigerous cyst.

【References】

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