Evaluation of the treatment plans for 46 cases of ameloblastoma

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Abstract

The purpose of this study is to evaluate the treatment plans selection of different types of ameloblastoma & its effect on prognosis depend on fallow up for different periods
This study represent the experience of author in treatment of 46 ameloblastoma cases in the period between January 2004 to August 2008 at AL-Hilla general teaching Hospital maxillofacial department & AL-Abass private Hospital. 46 patients are recorded in this study complainnig from different types of ameloblastoma, 28 were males constituting 61% while18 were females constituting 39%. The youngest patient was 13 years, while the oldest one was 55 years & the mean age was 34 years. 26 case conventional type (multilocular), 10 cases unilocular, 2 extraosseous & 8 malignant ameloblastoma All the conventional types were treated by resection with immediate reconstruction, unilocular cases by curettage, extraosseous by local resection & malignant ameloblastoma by resection with selective neck dissection. Successful treatment of ameloblastoma depends on correct selection of treatment plan. In this study the recurrence occurs only in the maxilla in cases treated by curettage may be due to nature of maxillary bone Therefore, local resection with immediate reconstruction is the preferred choice.

Introduction

The ameloblastoma is the most common clinically significant and potentially lethal odontogenic tumor. Excluding odontomas, its incidence equals or exceeds the combined total of all other odontogenic tumors[1]. These tumors may arise from rests of the dental lamina, a developing enamel organ, the epithelial lining of an odontogenic cyst, or the basal cells of the oral mucosa [2] Several causative factors have been proposed, including (1) nonspecific irritating factors such as extraction, caries, trauma, infection, inflammation, or tooth eruption; (2) nutritional deficit Disorders; and (3) viral pathogenesis [3]. The ameloblastoma occurs in three different variants, each with specific implications for treatment and a unique Prognosis: solid or multicystic, unicystic, and peripheral.[4]

Solid or Multicystic Ameloblastoma

This variant of the ameloblastoma is encountered in patients over a wide age Range.[5] It is rare in children in their first decade of life and relatively uncommon in the second decade.[6]. About 85% of this variant of the ameloblastoma occur in the mandible, most commonly in the molar/ramus region.6 About 15% of multicystic ameloblastomas occur in the maxilla, usually in the posterior Regions.[7-8] A painless expansion of the jaws is the most common clinical presentation; neurosensory changes are uncommon, Slow growth is the rule, with untreated tumors leading to tremendous facial disfigurement. [9]

The most common radiographic feature is that of a multilocular radiolucency.. Histologic patterns include *follicular*, *plexiform*,; *acanthomatous, granular cell*; *desmoplastic* [10]

Treatment and Prognosis The solid or multicystic ameloblastoma tends to infiltrate between intact cancellous bone trabeculae at the periphery of the tumor before bone resorption becomes radiographically evident. Therefore, the actual margin of the tumor often extends beyond its apparent radiographic or clinical margin.[11] Soft tissue margins are best managed according to the anatomic barrier margin principles whereby one uninvolved surrounding anatomic barrier is sacrificed on the periphery of the specimen.[12]

Unicystic Ameloblastoma refers to a pattern of epithelial proliferation that has been described in dentigerous cysts of the jaws that does not exhibit the histologic criteria for ameloblastoma published by Vickers and Gorlin.[13-14] it may be treated more conservatively than the solid or multicystic ameloblastoma with the same degree of cure.[15] More than 90% of these tumors are found in the mandible, usually in the molar/ramus Region.[16] Three histopathologic variants of unicystic ameloblastoma have been described that impact treatment and prognosis. *luminal unicystic , intraluminal unicystic ameloblastoma* contains one or more nodules of ameloblastoma projecting from the cystic lining into the lumen of the cyst &the third variant, known as *mural unicystic ameloblastoma*, the fibrous wall of the cyst is infiltrated by typical follicular or plexiform ameloblastoma.

Treatment and Prognosis The treatment of a luminal or intraluminal variant of the unicystic ameloblastoma is enucleation and curettage the mural ameloblastoma. Treated with a surgery similar to that for the solid or multicystic ameloblastoma [17]

Peripheral Ameloblastoma

The peripheral or extraosseous ameloblastoma is the most rare variant of the ameloblastoma. This tumor probably arises from rests of dental lamina or the basal epithelial cells of the surface epithelium [18] The peripheral ameloblastoma is most appropriately treated with a wide local excision. When surgical margins are negative for tumor, cure is the likely consequence.[19]

Malignant (Metastasizing) Ameloblastoma

Malignant ameloblastomas are best described as neoplasms that have the histologic features of benign ameloblastoma as shown by the primary growth in the jaws and by any metastatic growth.[20] The most common sites of metastatic disease are the lungs followed by the cervical lymph nodes and visceral organsw`[21,22,23]

Ameloblastic Carcinoma Ameloblastic carcinomas are malignant epithelial odontogenic tumors that exist in the background of benign ameloblastomas. Although ameloblastic carcinomas have been reported to metastasize to the lungs and distant organs [24]

Materials & methods

This study represent the experience of author in treatment of 46 cases of ameloblastoma in the period between January 2004 to August 2008 at AL-Hilla general teaching Hospital maxillofacial department & AL-Abass private Hospital. The treatment plans depend on details patient history, investigation (plane X-ray,CT as in (fig 2), MRI &biopsy Different surgical techniques were used depended on diagnosis the type &extension of ameloblastoma as curettage, peripheral osteoctomy, local &block

resection with selective neck dissection (fig 3). all the cases which need reconstruction are immediate reconstructed by iliac crest(fig 4) or rib graft

Result

46 patient are recorded in this study complains from different type of ameloblastoma, 28 were males constituting 61% while18 were females constituting 39% the youngest patients was 13 years, while the oldest one was 55 years & the mean age was 34 years. 26 case conventional type (multilocular), 10 cases unilocular, 2 extraossue & 8 malignant ameloblastoma all the conventional types were treated by resection with immediate reconstruction ,unilocular cases by curettage ,extraossues by local resection & malignant ameloblastoma (fig 1)by resection with selective or modified neck dissection , 2 cases of unilocular type in maxilla are recurrent therefore treated after recurrence by local resection, only one case of mandibulare conventional type reconstructed with iliac crest bone graft was failure due to infection .in this study the males more than females , mandible more than maxilla &multicystic more than other types of ameloblastoma

Most the multilocular types were treated by resection with immediate reconstruction (1-1.5cm) safe margin but 3 cases treated by hemimandibulectomy without

recurrence for more than 3 years fallow up unilocular. 10 cases treated by curettage with 2 cases recurrence extraossues by local excision without recurrence

Malignant ameloblastoma by resection with selective or modified neck dissection without recurrence for more than 3 years fallow up 2 cases in maxilla unilocular type are recurrent therefore later treated by local resection (partial maxillectomy) one case of conventional type resulted in failure of iliac crest bone graft in mandible due to infection& later reconstruction was performed

Table I. Age distribution of

age	No of patients	%
0-9	0	
10-19	8	17.3
20-29	10	21.7
30-39	13	28.2
40-49	14	30.4
50-59	1	2.1

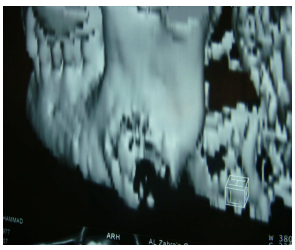
Table II. Sex distribution of ameloblastom

sex	No of patients	%
male	28	61
Female	18	39

Table III. Site distribution of ameloblastoma

sit	No of patients	%
Anterior mandible	8	17.3
Posterior mandible	27	58.6
Anterior maxilla	6	13.3
Posterior maxilla	5	10.8

(Fig 1) malignant ameloblastoma with cervical Lymph nods metastasis



(fig 2) CTscan examination of the same case in fig 1

(Fig 3) resection of mass with selective Neck dissection

(fig 4) post operative with bone graft reconstruction

Discussion

As reported previously that unilocular ameloblastomas tend to occur in younger age groups &our results confirmed this tendency.Surgical resection remains the mainstay of treatment for ameloblastoma It has been shown that most cases treated by curettage recur locally anywhere .from 1 to many years after treatment.[25] in this study conservative treatment resulted in recurrence its agree with the most reported literatures

Chemotherapy to date has played no role in successfully eradicating this tumor. In a case report describing metastases to the lungs and submandibular nodes,[26] in this study the Recurrence occurs in maxilla fallow curettage in young cases due to its not posses effective barrier to the spread therefore curettage inappropriate treatment plan & its agree with this anatomical characteristics of maxilla Recurrent cases fallow curettage in posterior maxilla is difficult in its treatment therefore marginal resection is preferred at the first treatment plan. No recurrence occurs fallow curettage in unicystic ameloblastom of mandible & the thick cortex play that important role. in this study the Preservation of the inferior boarder of mandible to maintain normal contour as possible that not interfere with complete removal & adequate safe margin. Cervical lymph nods metastasis reported in all malignant ameloblastoma cases without distance metastasis as lunge, liver…..etc &disagree the most repotted studies (lung first site of metastasis)

Malignant ameloblastoma treated by resection of primary lesion &selective or modified neck dissection the same principle of malignant epithelial origin

Peripheral type treated by local excision without recurrence All meloblastoma types treated by surgery only without others modalities as chemotherapy or radiotherapy Postoperative. closed follow-up is important in the management of ameloblastoma because more than 50% of all recurrences occur within 5 years of surgery.as in most reported study results

Conclusion

1-Successful treatment of ameloblastoma depend on correct selection of treatment plan

2-curettage is not sufficient treatment plan of maxillary unicystic ameloblastoma but sufficient in mandible therefore local resection is the preferred choice in maxilla.

3-All the malignant types are multicystic & metastasis to cervical lymph nods rather than distance organs as lung

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