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SURGICAL MANAGEMENT OF NEUROCRANIAL VAULT OSTEOMAS- A SINGLE CENTER STUDY

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ABSTRACT

AIM: To study the clinical presentation, diagnosis and management of osteomas involving the neuro cranial vault region.

MATERIALS AND METHODS: This study was conducted from January 2015 to December 2018 in department of Neurosurgery,Government Stanley Medical College. A total of 22 cases in the age group of 30 to 45 years were managed with surgical excision. The diagnosis based on radiographic and clinical features and histological confirmation of the biopsy specimen. The total follow-up period ranged from 3 to 24 months.

RESULTS: Total number of cases are 22(Male case-1,Female cases-21). 18 cases are frontal bone osteomas, three cases are parietal bone osteomas and one case of occipital bone involvement. All cases surgically managed by excision biopsy. No significant postoperative complications recorded in our study. Absolutely no recurrence in the follow up period.

CONCLUSION: Osteomas affect all age groups and mostly in females. They are clinically asymptomatic till they become large in size.Most of the patients came for cosmetic reasons and head ache and local pain.Complete surgical excision is the mainstay of management. Surgery is indicated when lesion is symptomatic or progressively enlarging. Scalp incision based on the site of osteomas, cosmetically based on Langers line or inside the hair line.

KEYWORDS : Osteoma, Neurocranium, skull vault, Excision biopsy,bone tumour

INTRODUCTION

Osteoma is a slow growing,benign neoplasm of bone.It contains compact lamellar cortical bone or cancellous bone forms a tumour mass[1,2] The majority of cases are sessile outgrowths. There are two varieties in osteomas, central or endosteal and periosteal or peripheral osteomas. In neuro cranium the periosteal type of osteomas are common. The pathogenesis of peripheral osteoma is not clear regarding whether it is a true neoplasm, or a developmental anomaly[3]. Even though mostly asymptomatic, pain and head ache are associated with the bony swelling. Skull bone osteomas, cutaneous sebaceous cysts, desmoids, multiple supernumerary teeth and colorectal polyposis is known as Gardner's syndrome[4]. The present study is to analyse the various clinical presentation, imaging features and surgical management of osteomas occurring particularly in neuro cranial vault region.

MATERIALS AND METHODS

The study period is from January 2015 to December 2018. Total number of cases operated during this period are 22 (Male case-1,Female cases-21). The age group ranged from 30 years to 40 years. The diagnosis of osteomas are made with clinical, image characteristics and confirmed with histo pathological examination of biopsy specimens.Head ache,local pain and cosmetic disfigurement are the main complaints from the cases. Pre-operative X-Ray and CT scan was done in all the cases. Smooth,round,regular borders with homogenous hyperdense appearanceare the characteristic features of osteomas.

After marking skin crease incision or incision inside the hair line are infiltrated with adrenaline ,lignocaine, bubivacaine and saline mixture. After painting with betadine and draping with sterile towels, osteoma exposed and complete excision done with chiselled out at the bottom on four sides from the skull surface. Bone wax applied over the raw area of excised osteoma base. Closed in layers after attaining complete haemostasis with and without drain. Excision biopsy specimen sent for HPE.Sutures removed on 7th post operative day.

RESULTS

Total number of cases are 22(Male case-1,Female cases-21). 18 cases are frontal bone osteomas, three cases are parietal bone osteomas and one case of occipital bone involvement. All cases surgically managed by excision biopsy. No significant postoperative complications recorded in our study. Absolutely no recurrence in the follow up period. In histopathology 20 cases are compact type, one case is spongy type and one case is mixed type.

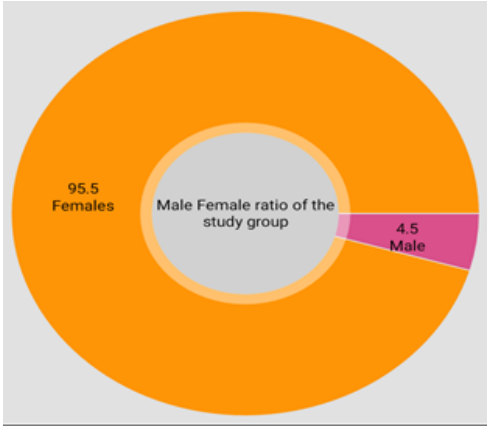

Figure 1 demographics of the study group

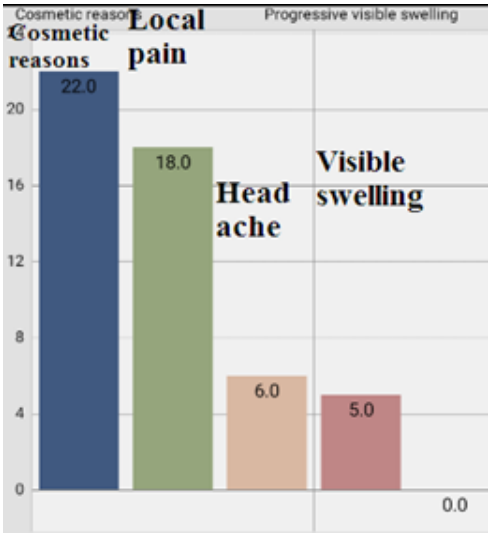

Figure 2 clinical presentation of the cases

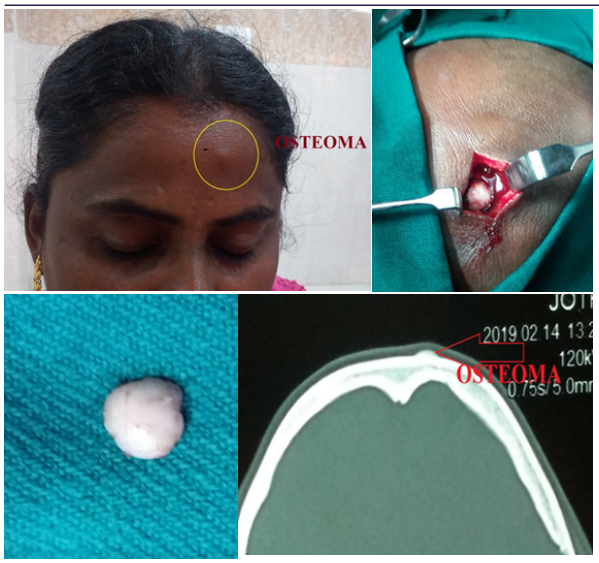

Figure 3 Osteoma excision and imaging features

DISCUSSION

An osteoma is a benign condition due to proliferation of compact or spongy bone. Etiopathogenetic hypotheses proposed for osteoma formation are congenital,chronic inflammation and neoplastic origin[6,7,8,9,10], trauma or embryogenetic changes,muscular traction forces[11].The lesion has three forms: central, peripheral and extraosseous. The central form derives from the endosteum and the peripheral form derives from the periosteum, whereas the extraosseous form develops in muscular tissue structures[12].This lesion has a higher prevalence in males with almost double the number of cases in men than in women[3]. But most of the cases are females in the present study,21 cases are females and one case is a male.

The peripheral type of osteomas are visible clinicaly as well as radiologically. Peripheral osteomas are mainly found in the frontal, ethmoid and maxillary sinuses,[13] Peripheral osteomas are mushroom-shaped, hard, radiopaque ,sessile or pedunculated masses on cortical bone. Their growth capacity is usually limited, but untreated cases may continuously enlarge. The differential diagnosis are peripheral ossifyingfibroma, exostoses, sessile osteochondroma, osteoid osteoma, periosteal osteoblastoma and paraosteal osteosarcoma. A peripheral osteoma can be distinguished from an exostosis on the basis of an accurate case history and clinical characteristics, but there are no histologic differences.[13] Osteoma continuously grow during adulthood,but exostoses not grow beyond adulthood. On x-rays, the lesion is radiopaque with well-defined margins. Computed tomography (CT) scans should be obtained for a complete preoperative evaluation of the lesion.[14] On CT scan, an osteoma is usually round or oval appears as a homogenous radiopaque projection on a broad base or it will be pedunculated. The margins are smooth, well defined and well corticated. The cancellous type has a normal trabecular bone pattern.

Histologically, three types of osteoma can be identified: Histologically, three types of osteoma can be identified and they are compact, spongy and mixed[13]. Patients with multiple osteomas should be evaluated for Gardner's syndrome.[11,12,14].Pain was the most frequent presenting complaint in our series and was present in all 18 cases.Neurologic disturbances may occur due to compression of adjacent nerves by the tumour. None of our cases had any neurological disturbance.A peripheral osteoma can be completely cured by surgical intervention, and there is no recurrence. Surgery consists of removing the lesion at the base where it enters the cortical bone,cosmetic incision plan.The pre operative work out includes indications for surgery, size and location of tumour, surgical approach and technique of excision cosmetically. There were no significant post-operative complications associated with these incisions. For five patients, a bicoronal approach was chosen since it gives the best possible exposure and the scar is well concealed by the hair bearing scalp. In all the patients, the cosmetic results obtained were excellent.

CONCLUSION

Osteomas affect all age groups and mostly in females in this study. They are clinically asymptomatic till they become large in size.Most of the patients came for cosmetic reasons and head ache and local pain.Complete surgical excision is the mainstay of management. Surgery is indicated when lesion is symptomatic or progressively enlarging. Scalp incision based on the site of osteomas, cosmetically based on Langers line or inside the hair line. Large. Multicentre study needed for further evaluation of osteomas.

CONFLICT OF INTEREST Non to declare from the authors

REFERENCES

1. Woldenberg Y, Nash M, Bodner L. Peripheral osteoma of the maxillofacial region. Diagnosis and management: A study of 14 cases. Med Oral Patol Oral Cir Bucal 2005;10(Suppl 2):E139-42.
2. Frolich MA. Mandibular osteoma: A case of impossible rigid laryngoscopy. Anesthesiology 2000;92:261-2.
3. Sayan NB, Cook C, Karasu HA, Gunhau O. Peripheral osteoma of the maxillofacial region: A study of 35 new cases. J Oral Maxillofacial Surg 2002;60:1299-301.
4. Lew D, DeWitt A, Hicks RJ, Cavalcanti MG. Osteomas of the condyle associated with Gardner's syndrome causing limited mandibular movement. J Oral Maxillofac Surg 1999;57:1004-9.
5. Larrea-Oyarbide N, Valmaseda-Castellon E, Berini-Aytes L, Gay-Escoda C. Osteomas of the craniofacial region. Review of 106 cases. Oral Pathol Med 2008;37:38-42.
6. Pelo S, Spota A, Gori P, Giuliani G. Osteomas of the facial massif.Minerva Stomatol 1988;37:875-86.
7. Alaerts J. 2 cases of ethmoido-frontal osteoma. Acta Otorhinolaryngol Belg 1972;26:294-302.
8. Baraglia M, Ungari L, Pesucci B, Ponti G, Corbi S, Secondari C.Osteomas of the mandibular condyle. A case report of particular surgical interest. Minerva Stomatol 1985;34:275-8.
9. Stuart E. Osteoma of the mastoid: Report of a case with an investigation of the constitutional background. Arch Otolaryngol 1940;31:838.
10. Dubin J, Bornhauser X, Desnos J. Osteoma of the paranasal sinuses. J Fr Otorhinolaryngol Audiophonol Chir Maxillofac 1977;26:573-89.
11. Kaplan I, Calderon S, Buchner A. Peripheral osteoma of the mandible: A study of 10 new cases and analysis of the literature. J Oral Maxillofac Surg 1994;52:467-70.
12. Ziccardi VB, Smith JA, Braun TW. Osteoma of the maxillary antrum. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1995;80:378-9.
13. Del Vecchio A, Agrestini C, Salucci P, Manicone AM, Della Rocca C. Osteomas and exostoses of the facial structures: A morphological study and the etiopathogenetic considerations. Minerva Stomatol 1993;42:533-40.
14. Jones K, Korzcak P. The diagnostic significance and management of Gardner's syndrome. Br J Oral Maxillofac Surg 1990;28:80-4.