CASE REPORT

Multidisciplinary approach for management of a patient with fibrous dysplasia of maxilla

Prashanti Eachempati,¹ Himanshi Aggarwal,² Vidya Shenoy,³ Mohan Baliga⁴¹Department of Prosthodontics, Melaka Manipal Medical University, Melaka, Malaysia²Department of Prosthodontics, King George's Medical University, Lucknow, India³AJ Shetty CODS, Mangalore, Karnataka, India⁴Manipal College of Dental Sciences, Mangalore, Karnataka, India**Correspondence to**

Dr Himanshi Aggarwal, drhimanshi84@gmail.com

Accepted 21 July 2015

SUMMARY

Fibrous dysplasia is a non-neoplastic hamartomatous developmental fibro-osseous lesion of bone. Monostotic fibrous dysplasia is more common than the polyostotic form and usually involves jaw bones, ribs and femur. Maxillary lesions may extend to involve the maxillary sinus, zygoma, sphenoid bone and floor of the orbit and require surgical intervention resulting in an acquired defect of the involved site. A multidisciplinary team approach involving an oral pathologist, oral surgeon, oral medicine expert and maxillofacial prosthodontist is required for successful treatment and rehabilitation of such patients. This article describes a case of a patient with fibrous dysplasia of the left maxilla, which was successfully managed by integrating surgical intervention and postoperative rehabilitation, with a surgical obturator and an interim partial denture prosthesis that successfully limited the detrimental effects of surgery, and helped the patient in resocialisation, thereby improving her quality of life.

BACKGROUND

Fibrous dysplasia is a non-neoplastic hamartomatous developmental fibro-osseous lesion of bone.¹ It is a poorly understood benign disturbance of bone that, although classified as a benign fibro-osseous disease, is currently considered to arise from specific bone forming mesenchyme.² Monostotic fibrous dysplasia is much more common than the polyostotic form, accounting for up to 80% of cases; it involves jaw bones, ribs and femur.³ Maxillary lesions may extend to involve the maxillary sinus, zygoma, sphenoid bone and floor of the orbit.

Primary treatment for fibrous dysplasia depends on the size of the lesion. Trimming and surface contouring of the affected bone, curettage of bony cavities and packing with bone chips remain the recommended treatments. Small lesions may require no treatment other than periodic follow-up. Large lesions that cause cosmetic or functional deformity require surgical intervention.⁴ However, surgery should be avoided until the patient reaches puberty.⁴

Surgical intervention results in the loss or significant alteration of the normal anatomic features of the oral and facial structures, which creates significant cosmetic, physiological and psychological deficiencies in the patient, to various degrees.⁵ The size and location of the defect influence the degree of impairment and difficulty in prosthetic rehabilitation.⁶ Hence, the preoperative discussion between the surgeon and prosthodontist on comprehensive

treatment and rehabilitation planning is crucial. It is important to understand that treatment of this disease condition does not end with surgical intervention, and an equally important aspect is prosthetic rehabilitation of the defect caused due to surgical treatment, so as to restore the patient's quality of life.

Owing to the high recurrence potential of fibrous dysplasia, immediate surgical reconstruction of the defect is usually avoided. Prosthetic management consists of fabrication of an immediate surgical obturator followed by interim obturator to permit early rehabilitation of physiological, cosmetic and psychological deficiencies; and later, definitive obturators are fabricated after complete healing has taken place.⁷

A multidisciplinary team approach involving oral pathologists, oral surgeons, oral medicine experts and maxillofacial prosthodontists is required for successful treatment and rehabilitation of such patients. This clinical report describes comprehensive management of a patient with fibrous dysplasia of maxilla who was successfully managed by an integrated multidisciplinary approach.

CASE PRESENTATION

A 25-year-old woman with a symptom of a painless swelling on the left side of the cheek, which had been enlarging for 3 months, was referred to the Department of Oral Medicine and Radiology, Manipal College of Dental Sciences, Mangalore, India. A solitary swelling, measuring about 5×7 cm, on the left side of the face was noted. The swelling extended superoinferiorly from the lower border of the orbit to the line connecting the corner of the mouth to the lower border of the tragus. Mediolaterally, it extended from the lateral border of the nose to the malar eminence. Intraorally, the

Figure 1 Bony prominence in the left buccal vestibule.

CrossMark

To cite: Eachempati P, Aggarwal H, Shenoy V, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2015-210330

Figure 2 Paranasal sinus view showing bony lesion of left maxilla.

swelling extended from the left maxillary second premolar to the second molar region ([figure 1](#)).

INVESTIGATIONS

- ▶ Radiographic examination—para nasal sinus view ([figure 2](#)) and CT ([figure 3](#)) were carried out, which revealed a central bony lesion with diffuse borders and ground glass appearance involving left maxilla and maxillary sinus, suggestive of monostotic fibrous dysplasia.
- ▶ Biopsy of the tissue showed a Chinese letter pattern ([figure 4](#)), which confirmed the diagnosis of fibrous dysplasia.

DIFFERENTIAL DIAGNOSIS

Fibrous dysplasia of left maxilla with sinus involvement.

Figure 4 Photomicrograph showing a Chinese letter pattern, typical of fibrous dysplasia.

TREATMENT

The patient was referred to the Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Mangalore, India, for surgical management. It was planned to carry out en bloc resection of the involved site ([figure 5](#)). Realising the utmost need for postsurgical rehabilitation, for presurgical prosthetic consultation, the patient was referred to the Department of Prosthodontics, Manipal College of Dental

Figure 3 CT scan showing bony lesion of left maxilla with sinus involvement.

Figure 5 Postoperative defect area.

Sciences, Mangalore. Preoperative prosthetic planning was discussed with the surgeon, and a surgical obturator was fabricated using diagnostic impressions made with irreversible hydrocolloid (Imprint; Dental Products of India Ltd, Mumbai, Maharashtra, India) and a diagnostic cast prepared in type III dental stone (Dentstone; Pankaj Industries, Mumbai, Maharashtra, India). The cast was used for evaluation of the occlusal relationship, evaluation of the strategic teeth and for fabrication of the surgical obturator. It was planned to preserve the strategically important maxillary third molar for the interim and definitive prosthesis, as a tooth supported partial denture is rarely subjected to the induced stresses compared with a distal extension partial denture.⁸

When the proposed extent of the resection was determined, it was outlined on the cast and returned to the laboratory for duplication and obturator construction. Light wrought wire clasps were incorporated to allow for better retention of the prosthesis. The surgical obturator facilitated retention of the surgical packing, promoted healing with minimal postsurgical infection, scar contracture formation and a more gradual realisation of the defect. Following the primary healing stage, an interim prosthesis was planned. The defect was examined visually and manually for its exact extent and location. There was sufficient availability of alveolar bone for support of the prosthesis.

A treatment plan was formulated to fabricate an interim acrylic partial denture. It is important for a prosthesis to be simple in design and use, so as to minimise the need for extensive oral care during the postsurgical period and permit easy modification of the prosthesis as the healing progresses. The

Figure 6 Definitive cast after primary healing.

Figure 7 Interim acrylic partial denture in place.

expectations of the interim partial denture were explained to the patient. The prosthesis was designed based on basic prosthodontic principles of broad stress distribution, cross arch stabilisation, minimising dislodging functional forces and replacing teeth to optimise prosthesis stability and functional needs.

Preliminary impressions were made with irreversible hydrocolloid (Imprint; Dental Products of India Ltd, Mumbai, Maharashtra, India). The impressions were removed and poured in type III dental stone (Dentstone; Pankaj Industries, Mumbai, Maharashtra, India) (figure 6). The cast was surveyed (Paraline; Dentaurem, Postfach 440, Germany) and the interim partial denture framework for the maxilla was designed. The framework was extended to cover the resected site and engaged most of the remaining teeth to gain additional retention needed for support. Conventional wrought wire clasps (Everbright Dental Stainless Steel wire; Comet, Mumbai, Maharashtra, India) were designed to engage the mesiobuccal undercut on the right maxillary first premolar and interproximally between the left premolars and molars. As there were tripod occlusal contacts, casts were articulated directly in a mean value articulator.⁹ Teeth arrangement was carried out. To avoid detrimental forces onto the residual alveolar ridge, passive occlusal contacts were established.

At the trial insertion appointment, the wax prosthesis was verified for occlusion. The denture was processed in heat polymerising acrylic resin (DPI-heat cure; Dental Products of India Ltd), finished and polished. The prosthesis was inserted and evaluated (figure 7). Final occlusal corrections were carried out. Care was taken to eliminate all eccentric interferences.

The patient was instructed on home care and prosthesis maintenance. A liquid or soft diet was prescribed initially to the patient, as considerable masticatory power may be lacking, and also to gradually change to normal dietary pattern. The patient was scheduled for the first postinsertion adjustment 24 h after the insertion. The resected area was observed to ensure health of the tissues.

OUTCOME AND FOLLOW-UP

The patient was successfully rehabilitated in a timely manner using a close collaborative multidisciplinary approach. En bloc resection of bony lesion followed by use of acrylic interim partial denture besides restoring health also provided comfort, function and cosmetics with minimal change to the compromised remaining structures. Follow-up evaluation of the prosthesis revealed that the patient was psychologically and functionally satisfied with the prosthesis. A review appointment was given 6 months later for the evaluation of the existing

prosthesis and fabrication of a definitive cast partial prosthesis. But due to financial constraints, cast partial prosthesis was not made and the patient continued to use acrylic partial denture. Following 1 year of follow-up, no recurrence was seen and the patient reported that the prosthesis helped her immensely in resocialisation, thereby improving her quality of life.

DISCUSSION

As fibrous dysplasia usually presents with painless bony swelling, most patients generally report very late, after significant enlargement and involvement of contiguous structures with cosmetic deformity have occurred. Most of the case reports highlight either the clinical and radiological features of fibrous dysplasia or its surgical management.^{10–13} But it is important to emphasise that treatment of patients with fibrous dysplasia does not end with surgical resection of involved bone, but continues until the prosthetic rehabilitation phase to restore the patient's quality of life.

Although there are no uniformly accepted protocols for management of fibrous dysplasia, surgical treatment remains the mainstay of therapy and is directed at correcting or preventing functional deficits and achieving normal facial aesthetics.¹² An individualised approach is required for decision-making regarding type of surgery and prosthetic rehabilitative needs to

improve the patient functionally as well as aesthetically. The surgical treatment must take into account the disease's harmful and recurrent potential, by choosing a more conservative approach to prevent mutilations and functional deficits, as carried out in the present case.

Immediate surgical obturator served as a means of retention for the surgical dressing, and this in itself minimised problems with speech and swallowing in the immediate postsurgical period. Use of an acrylic interim partial denture, besides restoring oral and general health, also provided comfort, function and cosmetics with minimal change to the compromised remaining structures.

A long-term follow-up of these patients is mandatory considering the probable flare up of continuous growth of the lesion.¹² Early recognition and multidisciplinary team management involving oral pathologist, oral surgeon, oral medicine expert for treatment and maxillofacial prosthodontist are essential for stomatognathic rehabilitation.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- Sumita M, Mala K, Karen B. Maxillofacial fibrous dysplasia. *Indian J Dent Res* 2005;16:151–2.
- Wood NK, Goaz PW. *Differential diagnosis of oral and maxillofacial lesions*. 5th edn. St. Louis: Mosby, 1998.
- Regezi JA, Sciubba J. *Oral pathology. Clinical pathologic correlations*. 2nd edn. Philadelphia: WB Saunders Company, 1993:401–4.
- Greenberg MS, Glick M. *Burket's oral medicine diagnosis and treatment*. 10th edn. Hamilton: BC Decker Inc/Elsevier, 2003:150.
- Carr AB, McGivney GP, Brown DT. *McCracken's removable partial prosthodontics*. 11th edn. St. Louis: Elsevier/Mosby, 2005:397–406.
- Keyf F. Obturator prostheses for hemimaxillectomy patients. *J Oral Rehabil* 2001;28:821–9.
- Laney WR. *Maxillofacial prosthetics*. Vol 4. 1st edn. Massachusetts: PSG Publishing Company, 1979:86–92.
- Phoenix RD, Cagna DR, DeFreest CF. *Stewart's clinical removable partial prosthodontics*. 3rd edn. Carol Stream, IL: Quintessence Publishing Co, Inc, 2003.
- Carr AB, McGivney GP, Brown DT. *McCracken's removable partial prosthodontics*. 11th edn. St. Louis: Elsevier/Mosby, 2005:306.
- Subramaniam V, Herle ATV. Fibrous dysplasia of the maxillary sinus: case report. *Rev Sul-Bras Odontol* 2010;7:366–8.
- Tinoco P, Pereira JCO, Filho RCL, et al. Fibrous dysplasia of maxillary sinus. *Int Arch Otorhinolaryngol* 2009;13:214–17.
- Menon S, Venkatswamy S, Ramu V, et al. Craniofacial fibrous dysplasia: surgery and literature review. *Ann Maxillofac Surg* 2013;3:66–71.
- Bhargava P, Khan S, Sharma R, et al. A swelling of the maxilla: a case report and differential diagnosis. *J Korean Assoc Oral Maxillofac Surg* 2014;40:308–12.

Learning points

- ▶ A multidisciplinary team approach involving oral pathologists, oral surgeons, oral medicine experts and maxillofacial prosthodontists is required for successful treatment and rehabilitation of patients with fibrous dysplasia of jaw bones.
- ▶ The treatment of patients with fibrous dysplasia does not end with surgical resection of involved bone, but continues until the prosthetic rehabilitation phase and regular follow-up regime to restore the patient's quality of life and to keep vigilance over recurrence of this notorious lesion, respectively.
- ▶ Presurgical prosthetic consultation is of paramount significance for better and comprehensive management of patients with fibrous dysplasia of the craniofacial region.

Copyright 2015 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow