International Journal of Dental Sciences
www.dentaljournal.in
E-ISSN: 2663-4708, P-ISSN: 2663-4694
Received Date: 14-11-2018 Accepted Date: 17-12-2018; Published: 17-01-2019
Volume 1; Issue 1; 2019; Page No. 27-30

Andy gump deformity as post-operative complication in treatment of squamous cell carcinoma

Dr. Tahir Ahmad[1], Dr. Rajender Bothra[2]
[1] MDS Student, Oral and Maxillofacial Surgery, MGSDC Sriganganagr, Rajasthan, India
[2] MBBS MS, ENT Surgery Oral and Maxillofacial Surgery, MGSDC Sriganganagr, Rajasthan, India

Abstract
Patients undergoing treatment for head and neck cancers are treated with resection of lower jaw, resection of tongue accompanied with reconstruction using muscle flaps. A number of post-operative complications arise out of this invasive surgical treatment compounded with post-operative chemotherapy and adjuvant radiotherapy. Andy gump deformity is one of rare mandibular deformity characterized by retrognathic mandible, absence of lower lip and severe facial asymmetry. In this case series we report two among many patients who underwent central arch commondo operation for squamous cell carcinoma with and by Jump deformity.

Keywords: cancer, head, neck, reconstruction

Introduction

Head and neck oncology surgery involves invasive surgical treatment of different malignancies arising in head and neck. The management of different malignancies require more complex and multi-disciplinary approach to remove the diseased part as well as prevent post-operative complications.

Advanced neoplasms of the oral cavity often require composite resection ("Commando" operation) to achieve clear surgical margins. The resulting bony and soft tissue defect has posed a challenging reconstructive problem. The transition from delayed secondary reconstruction to primary reconstruction using vascularized bone flaps over the last thirty years has yielded significant functional and aesthetic improvements.

The shape and contour of the mandible contribute significantly to the shape and expression of the lower third of the face. Indeed, mandibular projection is often addressed in cosmetic surgery to complement the aesthetics of the nose and other midfacial areas [1]. In oncologic surgery, resection of the anterior mandibular arch or hemi-mandible may be necessary to obtain clear oncologic margins. These resections can result in significant functional and aesthetic sequelae. For example, loss of the anterior mandibular arch was termed an "Andy Gump" deformity, after the well-known cartoon character

Given these considerations, reconstruction of oromandibular bony and soft tissue defects has always been an important consideration following oncologic resection. In the 1970's, primary bony reconstruction was avoided in favor of delayed (secondary) reconstruction. At that time, primary bone reconstruction was limited to non-vascularized reconstruction using corticocancellous bony chips harvested from the iliac crest placed in a prosthetic mesh. The placement of either a foreign body or non-vascularized bone in a saliva-contaminated wound resulted in frequent wound complications 50% of the time [2, 3]. Delayed reconstruction was therefore preferred.

This perfectly explained the rationale behind mandibular defects. In this case series we discuss two such patients who had undergone treatment for T3N2MO level squamous cell carcinoma and reported with andy gump deformity in follow ups.

Case report 1

In first case, male patient aged 65 years complained of ulcer over the lateral border of tongue for past 6 months. the patient complained of occasional pain which was slow progressive, occasional and radiating to forhead and ear, bleeding while brushing, loosening of teeth and discomfort while eating. on local examination, ulcerative growth measuring about 4cmx3cm in greatest dimension was prominent along lateral part of tongue with proliferating and extending along the alveolus and buccal mucosa on left side.on palpation, the growth presented with leathery hard consistency and bleeded on probing, associated with palpable sub mental submandibular and upper cervical lymph nodes.

Patient after admitted to oncology outpatient ward was subjected to further investigations. histopathological investigation of the local specimen excised from the alveolus and buccal mucosa was suggestive of high differentiated squamous cell carcinoma.

After well written and informed consent, patient was planned for central arch commondo operation involving partial glossectomy, resection of mandible on the affected side with bilateral modified neck dissection along with reconstruction using PMMC (pectoralis major myocutaneous flap).

Fig 1: front view of andy gump deformity

As part adjuvant therapy and prevent recurrence, patient was advised for measured doses of chemotherapy and radiotherapy and reviewed on regular visits.

After 4 months post operatively patient presented with severe anterior mandibular defect that resembled "andy gump deformity" with typical signs of retrognathic mandible, appearance of absent chin and facial asymmetry as seen in figure 1 and 2.in addition to associated signs, patients suffered from speech impairment drooling of saliva and bad cosmosis.

Fig 2: side view *o*f andy gump deformity

After due consultation with plastic surgery and maxillofacial surgeons, patient was advised for revised reconstruction for cosmetic and functional reasons. however it was denied by patient citing financial and age related problems. The patient has been regularly following up for post-operative checkups and doesn't have any other complain except already mentioned.

Case report 2

In second case, male patient aged 6o years complained of ulcer over the buccal mucosa for past 4 months. the patient complained of occasional pain which was non radiating, occasional and often relieved on medication, bleeding while brushing and eating, loosening of teeth and discomfort in speak. on local examination, ulceroproliferative growth measuring 3.5cm x3cm in greatest dimension was prominent along left buccal mucosa extending from retromolar area till corner of mouth with proliferating and extending along the alveolus and involving floor of mouth on left side. on palpation, the growth presented with hard consistency and bleeded on probing, associated with palpable sub mental and submandibular lymph nodes.

Patient after admitted to oncology outpatient ward was subjected to further investigations. Histopathological investigation of the local specimen excised from the alveolus and buccal mucosa was suggestive of moderately differentiated squamous cell carcinoma.

After well written and informed consent, patient was planned for central arch commondo operation involving partial glossectomy, resection of mandible on the affected side with bilateral modified neck dissection along with reconstruction using PMMC (pectoralis major myocutaneous flap)

Fig 3: front view of andy gump deformity

As part adjuvant therapy and prevent recurrence, patient was advised for measured doses of chemotherapy and radiotherapy and reviewed on regular visits.

After 4 months post operatively patient presented with severe anterior mandibular defect that resembled "andy gump deformity" with typical signs of retrognathic mandible, appearance of absent chin on left side. in addition to associated signs, patients suffered from speech impairment drooling of saliva and also complained about bad oral hygiene. patient was not cooperative for further cosmetic intervention and demanded for conservative management. The patient has been on regular follow up visits and have no fresh complaints.

Fig 4: side view of andy gump deformity

Discussion

A large number of surgical procedures have been advocated for mandibular reconstruction. The management of patients with defects secondary to resection of malignant tumors associated with the tongue, mandible and adjacent structures represents an especially difficult challenge [4].

The "Andy Gump deformity" is a euphemism for an anterior mandibular defect that creates the appearance of an absent chin and lower lip and severely retrognathic lower jaw, which is named after a character in an early 20th-century comic strip [5]. Head and neck ablative surgery is the most common cause for this deformity [6]. Patients with this deformity are at risk for airway compromise, cosmetic embarrassment, excessive drooling, mastication difficulties, and speech impairment.

Plastic surgeons have suggested that vascularized mandibular reconstruction is more advantageous and stable than an autogenous bone graft and bridging plates made of titanium [7-9]. The regular use of vascularized free flaps for primary reconstruction has dramatically changed outcomes following oromandibular resection, with the fibula free flap (FFF) as the workhorse flap for mandible reconstruction. The fibula was reported by Taylor from Australia [10] and was popularized by Hidalgo [11] from Memorial Sloan-Kettering Cancer Center. The FFF is supplied by the peroneal artery and can supply up to 25cm of bone, as well as a small paddle of skin and soft tissue. Through osteotomies and plating, the fibula can be shaped into the contour of the resected mandible. Reconstruction is now performed at the time of ablative surgery with immediate inset into the oral cavity. This advancement in technique addresses many of the shortcomings outlined earlier. The use of a vascularized flap allows its survival in a saliva-contaminated wound. Immediate reconstruction avoids the scarring and fibrosis seen from delayed reconstruction. Overall aesthetic appearance is improved because the flap re-creates the resected bone. Finally, bony continuity is restored, allowing eventual use of dentures or placement of osseointegrated dental implants.

Conclusion

Andy gump deformity is very rare complication, hardly reported with only few documented cases. COMMONDO surgery for well and moderate cases of squamous cell carcinoma of oral cavity is very invasive surgery with many post-operative complication and poor rehabilitation of patients therefore a well-planned reconstruction followed by proper post-operative palliative care appears to be effective in preventing such deformity.

Declaration

Acknowledgements; we have no further acknowledgements
Ethical approval and consent to participate; all the relevant information was taken from patients after informed consent from head of department.
Consent for publication; all data used in publication was taken after due consent.
Competing interests; there are no competing interest.
Funding; there was no funding received for this study.
Availability of data and material; Data sharing is not applicable, articles used from electronic medical records are supplementary for educational purposes only.
Authors contribution; all authors have duly read edited and contributed to this manuscript.

References

1. Chang EW, *et al*. Sliding genioplasty for correction of chin abnormalities. Arch Facial Plast Surg. 2001; 3(1):8-15. [PubMed: 11176712]
2. Komisar A, Warman S, Danziger E. A critical analysis of immediate and delayed mandibular reconstruction using A-O plates. Arch Otolaryngol Head Neck Surg. 1989; 115(7):830-833. [PubMed: 2660852]
3. Lawson W, *et al*. Experience with immediate and delayed mandibular reconstruction. Laryngoscope. 1982; 92(1):5-10. [PubMed: 6761526]
4. Roumanas E, Markowitz B, Lorant J, Nishimura R, Freymiller E. Beumer Reconstruction of mandible defects: conventional prosthodontics vs use of implants. In: Proceedings of the 1st International Congress on Maxillofacial Prostheses. New York: H Plus, 1994, 81-6.
5. Aziz SR. Andy Gump and his deformity. J Oral Maxillofac Surg. 2010; 68:651-653. Ref. https://goo.gl/V9U3i2

6. Seshul MB, Sinn DP, Gerlock AJ Jr. The Andy Gump fracture of the mandible: a cause of respiratory obstruction or distress. J Trauma. 1978; 18:611-612. Ref: https://goo.gl/dco3YS
7. Harii K. Microvascular Tissue Transfer. Tokyo: lgaku-shoin, 1983, 158-61.
8. Hidalgo D. Fibular free flap: a new method of mandible reconstruction. Plast Reconstr SUI. 1989; 84:71.
9. Harii K, Yamada A, Nakatsuka T, Ebihara S. Reconstruction of the mandible with a vasc ularized iliac bone or osteocutaneous flap. Jpn J Plast Reconstr SUiX. 1991; 34:47-58. (in Japanese).
10. Taylor GI, Miller GD, Ham FJ. The free vascularized bone graft. A clinical extension of microvascular techniques. Plast Reconstr Surg. 1975; 55(5):533-544. [PubMed: 1096183]
11. Hidalgo DA. Fibula free flap: a new method of mandible reconstruction. Plast Reconstr Surg. 1989; 84(1):71-79. [PubMed: 2734406]