

TWO YEARS AUDIT OF MAXILLOFACIAL SURGERY DEPARTMENT AT KHYBER COLLEGE OF DENTISTRY, PESHAWAR

¹BASHEER REHMAN, BDS, MCPS, FCPS-II Trainee

²QIAM UD DIN, BDS (Gold Medalist), MSc (London)

ABSTRACT

This study was conducted to identify the potential problems in the quality of care provided to the community in oral and maxillofacial unit of Khyber College of Dentistry.

2764 patients admitted in this unit from January 2006 to December 2007 were included in the study irrespective of age and gender.

Detailed analysis of the data showed, 1842 patients were males while 922 were females (2:1). Majority of the patients were from Peshawar Division (65.42 %) with the peak in the first decade of life. Maxillofacial injuries comprised 1004 patients (36.32%), of which mandibular fractures were the most common (69.72%). The overall morbidity rate was 1.74% (n=48).

Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry is the busiest center in Pakistan and the procedures performed on patients vary from simple extraction under general anesthesia to resection and reconstruction. This institute not only caters the entire N.W.F.P but also FATA and Afghanistan.

Key words: *Maxillofacial Surgical audit, Maxillofacial Trauma, Khyber College of Dentistry.*

INTRODUCTION

An audit of clinical practice is the analysis of data either prospectively or retrospectively to determine both quantitatively and qualitatively the work load of an institution or individual department. It includes numbers of admissions, patient demographics, various complications and mortality.¹

Surgical audit is a normal part of surgical practice². It is a systematic, critical analysis of the quality of surgical care provided, with the aims of improving quality of care, continuing education for surgeons, and guiding appropriate use of health resources. It has certain advantages, e.g. accuracy of data collection, opportunities for clinical learning and training needs analysis, clinical outcome indicators, development of surgical protocols, measures of operational effectiveness, opportunities to identify and correct problems and guidelines for research.^{3,4}

The worldwide pattern of oral and maxillofacial surgical conditions has been rarely reported despite its significance in head and neck medicine⁵.

A two year audit from Jan 2006 to Dec 2007 was presented in this study which will cover clinical, academic and research aspects. This audit was designed with the aim to identify potential problems in the quality of care when oral and maxillofacial surgery is provided to the community in KCD unit.

MATERIALS AND METHODS

All patients admitted to Oral & Maxillofacial Surgical Unit of Khyber College of Dentistry Peshawar over a 2 years period from January 2006 to December 2007 were included in the study. Data was recorded on patient's age, gender, occupation, date of admission, geographic distribution, cause of disease/ trauma and presenting complains. Data collected also included, the

¹ Junior Registrar, Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry, Peshawar

² Principal & Dean, Khyber College of Dentistry, Peshawar

Correspondence: Dr. Basheer Rehman, Junior Registrar, Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry, Peshawar. E-mail: trygeminal76@yahoo.com, mobile: 03339199288, Office: 091-9216217

number and nature of surgical procedures, hospital stay and complications.

The Database was used to determine the number of patients, number and type of procedures and outcome factors for morbidity. Various complications and mortality factors were also discussed.

RESULTS

Between January 2006 and December 2007, the Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry, Peshawar offered specialized services to 2764 patients. Among these 1842 were males and 922 were females. The male to female ratio was 2:1 (Fig-1). These patients reported from different areas of NWFP as well as from out side regions. The geographical distribution of these patients is given in Fig 2. It is worth mentioning that for the purpose of convenience, a division wise distribution was preferred along with FATA and Afghanistan as a whole.

The youngest patient in this study was 6 months old and the eldest was 90 years old. The overall age

distribution is given in Fig 3 with the peak in 1st decade. The distribution of 2764 patients is shown in Table 1. Maxillofacial injuries comprised 36.32% (n=1004) of the total patients. Mandibular fractures were the most common among maxillofacial injuries (Fig 4). The treatment modalities applied to these fractures are shown in (Fig 5). Dental Extractions under mask anesthesia were 35.96% of total patients. This specific group of patients was mainly uncooperative children or mentally retarded and was difficult to handle under local anesthesia.

Temporo mandibular joint ankylosis was seen in 145 patients (5.25%). Out of these 104 patients were operated. Peripheral neurectomies were performed in 76 (2.75%) cases of trigeminal neuralgias while 18 (0.65%) repairs of oroantral / oronasal fistulae were done.

Pathological lesions of the hard and soft tissues were 15.02 % of the total audit. Among these cystic lesions were more common (41.69%), followed by Fibroosseous lesions (12.53%) and abscesses (9.64%) as

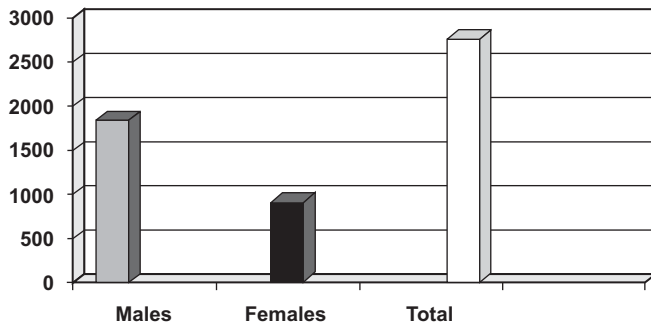


Fig 1: Gender Distribution

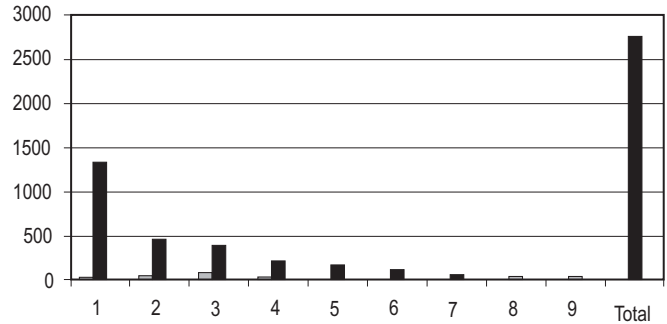


Fig 3: Age Distribution

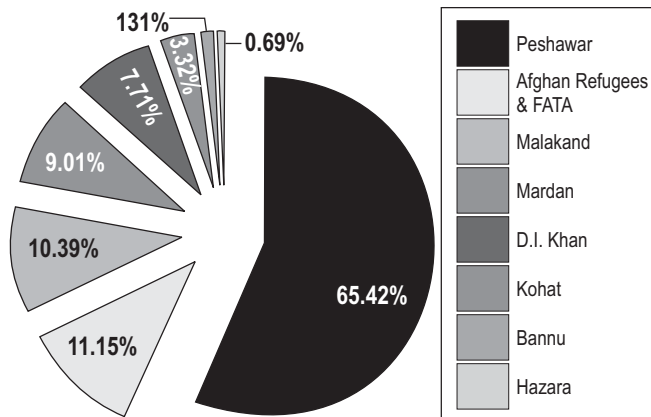


Fig 2: Geographic Distribution

TABLE 1: DISEASE WISE DISTRIBUTION OF PATIENTS (n = 2764)

Disease	Number	Percentage
Trauma	1004	36.32
Dental Extractions	994	35.96
Lesions of hard & soft Tissues	415	15.02
TMJ Ankylosis	145	05.25
TMJ dislocation	10	00.36
Trigeminal Neuralgia	76	02.75
Wisdom Teeth	54	01.95
Oro antral fistula	18	00.65
Complications	48	01.74

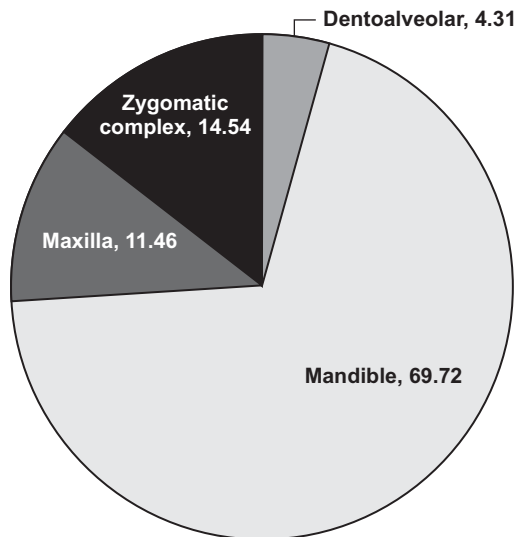


Fig 4: Maxillofacial Trauma (%)

TABLE 2: PATHOLOGICAL LESIONS (n = 415)

Type	Number	Percentage
Cystic lesions	173	41.69
F.O Lesions	52	12.53
Abscess	40	9.64
Gingival hyperplasia	37	8.92
Squamous cell ca	30	7.23
Hemangioma	24	5.78
Osteomyelitis	13	3.13
Ranula	9	2.17
Ameloblastoma	7	1.69
Salivary gland stones	6	1.44
Sarcoma	3	0.72
Others	21	5.06

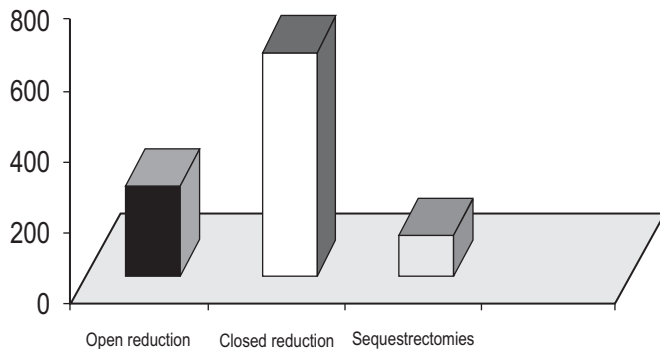


Fig 5: Treatment modalities of Trauma

shown in Table 2. The treatment provided for such lesions is shown in Table-3.

TABLE 3: TREATMENT MODALITIES OF PATHOLOGICAL LESIONS (n = 415)

Disease	Number	Percentage
Excisions	200	48.19%
Incisional biopsies	114	27.48%
Stone removal	6	01.45%
Boiling water injection	24	05.78%
Sequestrectomies	13	3.13%
Incision drainage	32	07.71%
Mandibulectomies	13	03.13%
Maxillectomies	2	00.48%
Marsupialization	11	02.65%

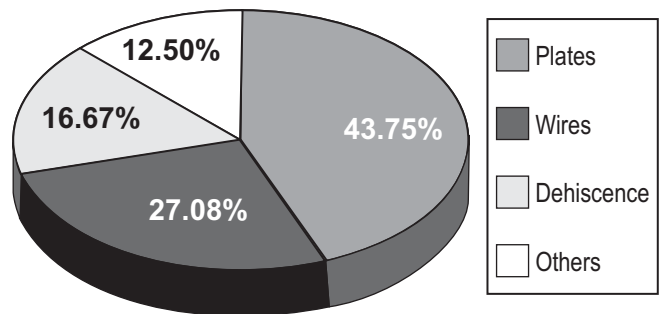


Fig 6: Complication / Morbidity Rate

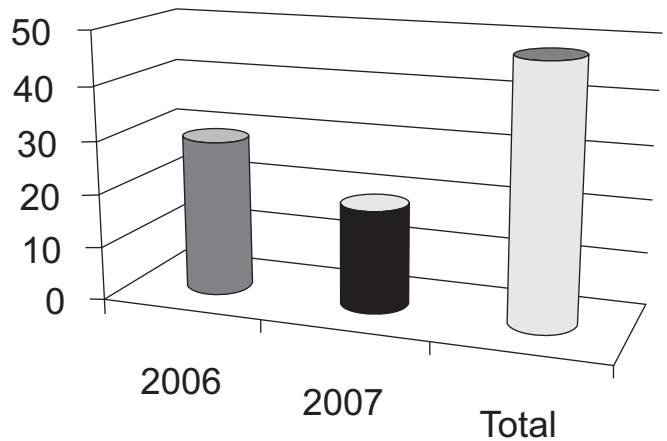


Fig 7: Comparison of morbidity

Detailed scrutiny of the record showed that a total of 48 (1.74%) patients out of 2764 presented with complications /morbidity. Out of these 48 patients, 43.75 % (n=21) were those presented with infections following bone plating (Fig 6). The number of complications dropped from 2006 to 2007 (Fig 7).

DISCUSSION

An audit of surgical outcome can be seen as the final step in what has been termed the “journey of care” for both the individual patient and for the population as a whole.⁶ When outcomes are open to scrutiny, data validation is a vital component of meaningful clinical audit. It outlines in greater detail the progress and problems in surgical audit.⁷

Maxillofacial injuries remain the serious clinical problems because of the specificity of this anatomical region⁸ and constitute approximately 45% of the work load on Oral and Maxillofacial surgeons worldwide⁹. Our finding (36.32%) for maxillofacial trauma is slightly on the lower side. However, the data from maxillofacial departments do not reflect quite precisely the incidence of maxillofacial injuries. The reason being some patients with maxillofacial injuries concomitant with severe injuries of the other body regions are admitted to neurosurgical, casualty, orthopedic, ENT and other wards. Another possible explanation can be that there may be no need to treat the patients with minor maxillofacial injuries in the specialized maxillofacial surgery departments. Although, the pattern of bony injuries (Fig 4) in our study is in agreement with reports from other developing countries.⁹ Increase in the incidence of trauma (1.83%) as a result of fire arm injuries from 2006 to 2007 indicates the increase in violence in the region in the form of war on terror. The predominance of injured males is consistent with the findings of previous published work showing male to female ratio ranging from 2:1 to 2.5:1.¹⁰ In this study, the ratio was 2:1 which is a reflection of the worldwide research.

Among the pathological lesions of the hard and soft tissues, squamous cell carcinoma has significantly greater incidence (7.23%) than the rest of the world (2-3%).¹¹ This is probably because of the increase in tobacco use as Naswar in this part of the region, which is an established cause of oral SCC.¹²

Hemangiomas has increased in number from 2006 (3.44%) to 2007 (13.42%), although the overall incidence (5.78%) is still less than the rest of the world (21.95%)¹³ partly because the majority of the patients visit to other specialties as well. The findings for other pathologies are consistent with studies elsewhere.^{5,14}

The treatment for ankylosis of the TMJ remains a challenging and frustrating endeavor. The treatment is evolving slowly into a more predictable technique, with more and more technological advancements in both surgical performance and adjunctive therapy. Many promising therapies are on the horizon; in the years to come perhaps one can hope not only to make the surgery less challenging but also the results more satisfactory and uniform throughout the world.¹⁵ The incidence of TMJ ankylosis has dramatically decreased during our study period from 7.27% in 2006 to 3.03% in 2007, partly because of the positive attitude and awareness of the community towards the prevention and treatment of this condition.

The pre auricular approach with temporal extension, popularized by Al Khayat and Bramley in 1981 is the preferred technique for condylectomy¹⁵. Using this approach a total of 104 out of 145 TMJ ankylosis were treated successfully during this period. Arthroplasties were done using either disc or temporal muscle. Coronoidectomies were also performed in those cases where mouth opening was difficult to achieve by condylectomies alone.

In this study 76 patients (2.75%) with trigeminal neuralgia were treated by neurectomies as compared to 0.015% in other parts of the world.¹⁶ In most of the developed countries the patients of trigeminal neuralgia are well controlled with Carbamazepine and other similar drugs. Keeping in view the long term follow up as well as cost of the medicines for a long period of time, people of this region opt for surgical treatment of trigeminal neuralgia. This not only reduces their repeated visits for consultation but also give them quick recovery from unbearable painful condition. The saving on the cost of medicine is another advantage for the poor patients in particular.

A fundamental percept of the philosophy of dentistry is that problems should be prevented dictating that impacted teeth are to be removed before complications arise.¹⁷ The dilemma for the oral and maxillofacial surgeon is the inability to predict future morbidity with retention of asymptomatic impacted teeth. Micro flora around unerupted teeth has shown a predominance of organisms implicated in perio-

dental diseases, such as deep pocketing and alveolar bone loss particularly distal to second molar in mandibular third molars impactions.¹⁸ Impacted teeth present a spectrum of major problem affecting the large population with remarkable morbidity.¹⁹ One of the commonest group of patients reporting to oral surgery department are young healthy adults seeking help for impacted or partially erupted third mandibular molars and it is found that most of them are removed because of infections related to them.²⁰ Our findings are similar to the previous observations.²¹

The incidence of infections following intra osseous fixation is from 12 – 32 % worldwide.²² Our study shows 21.12% of plates / wires removal due to infections. The overall post operative morbidity / complications rate dropped to 1.44% (n=19/1320) in 2007 as compared to 2.01% (n=29/1444) in 2006 because of the more careful case selection and the introduction of preoperative discussion regarding the treatment planning. Moreover, the better infection control during the later period may be the reason for drop in infection.

CONCLUSION

This study is the first of its kind in the specialty of Oral & Maxillofacial surgery in Pakistan. The conclusion that can be obtained from this study are;

1. Department of Oral & Maxillofacial Surgery Khyber College of Dentistry is the busiest Centre in Pakistan.
2. The procedures performed on patients reporting to this centre vary from simple extraction under general anesthesia to resections and reconstructions.

The geographical distribution is a clear indication that this institution not only caters the entire North West Frontier Province but also FATA and neighboring country Afghanistan.

RECOMMENDATIONS

The specialty of Oral & Maxillofacial Surgery needs to be introduced at District Head Quarter Hospitals so that the needy patients are provided services at District levels.

REFERENCES

- 1 Bilal A, Salim M, Muslim M, Israr M. Two years audit of Thoracic Surgery Department at Peshawar. *Pak J Med Sci* 2005; 21(1): 12-16.
- 2 Surgical audit and peer review. A guide by the Royal Australasian College of Surgeons. 3rd ed. Melbourne: RACS, 2008; 5-6.
- 3 Susan J Neuhaus and Jeffrey V Rosenfeld. Surgical audit on military operations: an evolving necessity. *ADF Health* 2006; 7: 29-32
- 4 Upile T, Jerjes W, Sipaul F, El Maaytah M, Nouraei SA, Singh S, Hopper C, Wright A. The role of surgical audit in improving patient management; nasal hemorrhage: an audit study. *BMC Surg.* 2007; 13 (7):19.
- 5 Adebayo ET, Ajike SO, Abite MG. Audit of oral and maxillofacial surgical conditions seen at Port Harcourt, Nigeria. *Ann Afr Med.* 2008; 7(1): 29-34.
- 6 Herbert MA, Prina SL, William SJL. Are unaudited records from an outcome registry database accurate? *Ann Thorac Surg* 2004; 77(6):1960-4.
- 7 Justo RN, Janes EF, Sarget PH. Quality assurance of Paediatric Cardiac Surgery: a prospective 6 years analysis: *Paediatr Child Health* 2004; 40(3):144-8.
- 8 Malara P, Malara B, Drugacz J. Characteristics of maxillofacial injuries resulting from road traffic accidents – a 5 year review of the case records from Department of Maxillofacial Surgery in Katowice, Poland. *Head & Face Medicine* 2006; 2:27
- 9 Adeyemo WL, Ladeinde AL, Ogunlewe MO, James O. Trends and characteristics of oral and maxillofacial injuries in Nigeria: A review of the literature *Head & Face Medicine* 2005; 1:7.
- 10 Khan SU, Khan M, Khan AA, Murtaza B, Maqsood A, Ibrahim W, et al. Etiology and pattern of maxillofacial injuries in the Armed Forces of Pakistan. *JCPSP* 2007; 17 (2): 94-97
- 11 Brown AE, Kerr JM. The team approach in the management of oral cancer. In: Booth PW, Schendel SA, Hausamen JE. *Maxillofacial surgery*. 2nd ed. Philadelphia: Churchill Livingstone; 2007; 324-30.
- 12 Brandwein-Gensler M, Hille JJ. Behind the cover: the gutka story. *Arch Otolaryngol Head Neck Surg* 2003; 129:699-700.
- 13 Kang GC, Song C. Forty one cervicofacial vascular anomalies and their surgical treatment –retrospection and review. *Ann Acad Med Singapore*. 2008; 37(3): 165-79.
- 14 Dimba EA, Gichana J, Limo AK, Wakoli KA, Chindia ML, Awange DO. An audit of oral diseases at a Nairobi centre, 2000-2004. *Int Dent J.* 2007; 57(6): 439-44.
- 15 Nayak PK, Nair SC, Krishnan DG, Perciaccante VJ. Ankylosis of the Temporomandibular Joint. In: Booth PW, Schendel SA, Hausamen JE. *Maxillofacial surgery*. 2nd ed. Philadelphia: Churchill Livingstone; 2007; 1521-39.

- 16 Longman L, Field A. Facial pain and neurological disturbances. In: Tyldesley's Oral Medicine. 5th ed. New York: Oxford Univ. Press 2003; 179 - 90
- 17 Peterson LJ. Principles of Management of Impacted Teeth. In: Peterson LJ, Ellis E III, Hupp JR, Tucker MR. Contemporary oral and Maxillofacial surgery. 4th ed Philadelphia: Mosby 2003; 184-213.
- 18 White RP Jr, Offenbacher S, Blakey GH, Haug RH, Jacks MT, Nance PE, et al. Chronic oral inflammation and progression of periodontal pathology in the third molar region. *J Oral Maxillofac Surg.* 2006; 64: 880-885.
- 19 Gbotolorun OM, Olojede AC, Arotiba GT, Ladeinde AL, Akinwande JA, Bamgbose BO. Impacted mandibular third molars: presentation and postoperative complications at the Lagos University Teaching Hospital. *Nig Q J Hosp Med.* 2007; 17(1): 26-9.
- 20 Adeyemo WL. Do pathologies associated with impacted lower third molars justify prophylactic removal? A critical review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2006; 102(4): 448-52.
- 21 Cho SY, Ki Y, Chu V, Chan J. Impaction of permanent mandibular second molars in ethnic Chinese schoolchildren. *J Can Dent Assoc.* 2008 Jul-Aug; 74(6): 521
- 22 Banks P, Brown A. Complications. In: *Fractures of the Facial Skeleton.* 1st ed .Oxford: Wright 2001; 171-85.