Types of minor oral surgical procedures performed on patients attending Muhimbili National Hospital, Dar es Salaam, Tanzania

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Abstract

Background: Minor oral surgical procedure is any intervention that does not penetrate a body cavity. The procedure does not involve general anaesthesia or respiratory assistance.

Objectives: The aim of this study was to document types of minor oral surgical procedures performed on patients attending Muhimbili National Hospital (MNH) for a period of 5 years.

Study design: This was a retrospective study based on the hospital data retrieved from February 2003 to February 2007.

Study population: Patients who had undergone minor oral surgical procedures at the Department of oral surgery and oral pathology.

Methodology: A sample of 850 patients was obtained from the treatment files of the patients who had undergone minor oral surgical procedures during the period of review. Demographic data and different procedures were recorded, entered into the computer and analysed using SPSS programme version 11.

Results: Among 850 patients, who had undergone minor oral surgical procedures, 509 were males and 341 were females. Males (59.9%) were more treated compared to females (40.1%) and the most age groups treated were 21-30 and 31-40 with each group comprising 36.6% and 23.2% of minor oral surgical procedures respectively. The age groups 61-70, 71-80 and 81-90 were the least treated. Disimpaction (28.8%) was the commonest procedure which was performed followed by incisional biopsy (22.2%) and IMF (16.3%) while FNAC and enucleation were the least performed procedures.

Conclusion: Most of the minor oral surgical procedures performed on patients at our centre were disimpaction, incisional biopsy, IMF and cystectomy. FNAC was the least performed procedure. The fact that this study is a retrospective study it does not provide a true picture of minor oral surgical procedures performed at our centre. Therefore, there is a need to conduct a prospective study.

Key words: Oral surgical procedure Muhimbili

Introduction

Minor oral surgical procedure is any intervention that does not penetrate a body cavity or ordinarily have the potential to result in impairment of a vital physical or physiological function. The procedure does not involve general anaesthesia or respiratory assistance.[1,2] The procedure is different from major surgical procedures in that, major surgical procedure involve surgical intervention that penetrates a body cavity (e.g. cranial, thoracic, ocular or orbit) or has the potential for producing a permanent impairment of a physical or physiological function, and involve general anaesthesia and respiratory assistance.[1, 2] There are many minor surgical procedures performed at the Muhimbili National Hospital (MNH) but no documentation has been made for many years.

Disimpaction is the procedure which is performed to remove the impacted tooth under local anaesthesia. In some people the teeth become partially or completely impacted below the gum line because of the lack of space, obstruction in the path of eruption, or abnormal position[3]. The aetiology of impacted teeth can be grouped into local factors and systemic factors. Local factors include lack of eruption space, presence of supernumerally teeth, micrognathia and hyperdontia.[4,5] Systemic factors include Gardeners syndrome, cleidocranial dyostosis, osteogenesis imperfecta, osteoporosis, cherubism, amelogenesis imperfecta and radiotherapy and chemotherapy at an early age.[6,7] Completely impacted tooth has been identified as the one which lies completely in the jaw bone and has no communication with the oral cavity. Partially impacted tooth is the one which is not completely encased in the jaw bone but lies partially in the soft tissue.[8]

Reduction and immobilization is the procedure performed to the patient who has sustained either facial bone or long bone fracture. Reduction method can be closed reduction in which there is bone manipulation without exposing the bone to the external environment under local anaesthesia (minor oral surgical procedure) or open reduction in which the bone is exposed to the external environment before the reduction and immobilization of the fracture under general anaesthesia (major surgical procedure). However, most of the cases are performed under local anaesthesia. For fractures of the jaw bones reduction is done first and then followed by intermaxillary fixation (IMF) under local anaesthesia. Many causes of jaw fracture have been documented in the world literature and they include physical violence, automobile accident, sports, falls from the height and localised bone pathology.[9, 10, 11, 12] The prevalence of facial bone fractures have been reported to be 20.2%[13]and occurred more in males compared to females.[9] Reduction and immobilization with simple arch bar appeared to be more effective, more so when the patient could not afford more modern methods of treatment.[14]

Frenuloplasty is the procedure which is performed to correct ankyloglosia (tongue tie) under local anaesthsia. Ankyloglosia has been defined as congenital abnormality which limits the free movement of the tongue. In breastfeeding infants can cause the inefective latch, in adequate milk transfer, and maternal nipple pain.[15] Some studies have defined it as congenital condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of the short lingual frenulum.[16] Tongue tie is the sole anomaly but very rarely may be associated with cleft lip or Piere Robin syndrome.[17]

Cystectomy is the procedure which is performed to remove a cyst. Depending the size and location of the cyst, cystectomy can be minor or major surgical procedure. Those which are large are treated under general anaesthesia (major surgical procedure) while those which are small are treated under local anaesthesia (minor surgical procedure). A cyst has been defined as a cavity occurring in the hard or soft tissue with liquid or semiliquid or gaseous content. It is surrounded by definitive connective tissue or capsule and usually has epithelium lining.[18] Cyst can be classified as congenital cyst e.g. .dermoid cyst, developmental cyst e.g. mucocele, ranula, dentigerous cyst, and inflammatory cyst e.g. residual cyst.[18] The causes of cyst can be dental infection e.g. inflammatory cyst, or obstruction of the glandular duct e.g. in mucocele or can be due to trauma.[18]

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Dental abscess is the localised collection of pus in the teeth supporting structures. There two types of abscess which are periapical abscess also known as dentoalveolar abscess which originate from the necrotic pulp cavity and periodontal abscess which originates from the supporting structures of the teeth.[19,20] The causes of dental abscess are bacterial invasion and multiplication in a normally sterile dental tissue due to general or local predisposing factors such as dental decay. Microbiological studies have shown that most of the abscesses are due to polymicrobial anaerobic bacteria infections.[21] Usually three or more causative organisms can be isolated from dental abscess and are predominantly gram negative anaerobic bacilli.[19, 21] Other study reported the coexisting factors (presence of diabetes, compromised immune system, smoking and drug induced gum conditions) that might increase the risk of getting dental abscess.[22] The reported prevalence of dental abscess ranged from 5 to 46%.[23] The treatment involves incision and drainage under local anaesthesia followed removing aetiological factors and coverage with appropriate antibiotics.[23] In Tanzania and especially at our centre there is no study which has been conducted to document different minor oral surgical procedures performed. Therefore, the aim of this study is to document different minor oral surgical procedures performed at MNH for the period of 5 years in order to establish basic data which will be the foundation for further research.

Material and methods

Study design

This was the retrospective study based on hospital data retrieved for the period of 5 years (from February 2003-February 2007).

Study area

Department of oral surgery and oral pathology, Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania.

Study duration

The study took about 12 weeks (84 days).

Study population

All patients who had undergone minor oral surgical procedures at the Department of oral surgery and oral pathology.

Data collection

Files for patients who had undergone minor oral surgical procedures at the department of oral surgery and oral pathology, Muhimbili National Hospital (MNH) were retrieved from the records during the five years period. Demographic data and different minor oral surgical procedures were recorded, entered into the computer and analysed using SPSS programme, version 11.The variables used were age groups, sex and types of minor oral surgical procedures. These variables helped to find out how minor surgical procedures are distributed among sex and age groups.

Results

A total of 20521 files reviewed in the department of oral surgery and oral pathology, at Muhimbili National Hospital during the five years period (2003-2007). Among them 850 patients were documented to have undergone minor oral surgical procedures. Five hundred and nine 509 (59.9%) were male and 341(40.1%) were females with M: F ratio of 1.5:1 (Table1).

Table 1. Summary of the minor oral surgical procedures performed at MNH for a Period of 5 years (2003-2007)

Year	Sex		Sex ratio	Total N (%)
	Male	Female		
2003	118	60	2:1	178 (20.9)
2004	156	103	1.5:1	259 (30.5)
2005	61	52	1.2:1	113 (13.3)
2006	61	40	1.5:1	110 (11.9)
2007	113	86	1.3:1	199 (23.4)
Total	**509 (59.9%)**	**341 (40.1%)**	**1.5:1**	**850 (100)**

The ages ranged from 1 to 81 years with the mean age of 34.5 (SD ± 18.96) .The age groups 21-30 years and 31-40 years were the most treated with each group comprising 36.6% and 23.2% of minor oral surgical procedures respectively. The age groups 61-70, 71 -80, and 81-90 were the least treated (Table 2).

Table 2. Age groups and Sex distribution of minor oral surgical procedures

Age group	Male	Female	Total N (%)
1-10	26(3.1%)	12(1.4%)	38 (4.5)
11-20	61(7.2%)	50(5.9%)	111 (13.1)
21-30	182(21.4%)	129(15.2%)	311 (36.6)
31-40	118(13.9%)	79(9.3%)	197 (23.2)
41-50	59(6.9%)	22(2.6%)	81 (9.5)
51-60	40(4.6%)	28(3.4%)	68 (8.0)
61-70	15(1.8%)	13(1.5%)	28 (3.3)
71-80	7(0.8%)	8(0.9%)	15 (1.7)
81-90	1(0.1%)	0(0%)	1 (0.1)
Total	**509(59.9%)**	**341(40.1%)**	**850 (100)**

Disimpaction was the mostly frequently done procedure 24 (28.8%) followed by incisional biopsy 188 (22.2%), IMF 138 (16.3%), Excisional biopsy 80 (9.4%), cystectomy 75 (8.9%), Incision and drainage (I&D) 56 (6.6%), Splinting 34 (4%), and stitching 14 (1.6%).Other procedures had frequency below one (Table 3).

Table 3.Type of minor oral surgical procedures in relation to sex

Type of procedure	Male	Female	Total N (%)
Disimpaction	143(16.8%)	102(12%)	245 (28.8%)
IMF	118(13.9%)	20(2.4%)	138 (16.3%)
Splinting	23(2.7%)	11(1.3%)	34 (4%)
Gills approach	2(0.2%)	-	2 (0.2%)
Open reduction	6(0.7%)	1(0.1%)	7 (0.8%)
Cystectomy	37(4.4%)	38(4.5%)	75 (8.9%)
Marsupilization	4(0.5%)	2(0.2%)	6 (0.7%)
Enucleation	-	1(0.1%)	1 (0.1%)
EXC.BX	45(5.3%)	35(4.1%)	80 (9.4%)
INC.BX	90(10.6%)	98(11.6%)	188 (22.2%)
I&D	25(2.9%)	31(3.7%)	56 (6.6%)
Stitching	13(1.5%)	1(0.1%)	14 (14.6%)
Frenectomy	2(0.2%)	1(0.1%)	3 (0.3%)
FNAC	1(0.1%)	-	1 (0.1%)
Total	**509(59.9%)**	**341(40.1%)**	**850 (100%)**

Discussion

This study was cleared by the Ethical Committee of the Muhimbili University of Health and Allied Sciences (MUHAS) and the Muhimbili National Hospital (MNH).The result of this study does not clearly reflect the true picture of minor oral surgical procedures performed at our centre because of the lack of progressive and timed data collection. Since the data was collected retrospectively, some of the minor procedures performed might have been missed. The current study showed a wide variation of minor oral surgical procedures encountered during the period under review. The findings that males 509(59.9%) undergone more minor oral surgical procedures compared to female 341(40.1%) concurred with other investigations done in Nigeria and in Dar es salaam[13, 14]. No strong reasons which could be given to explain the similarities between these studies. Probably it could be due to environmental factors that are shared in the countries where the studies conducted. On the other hands social habits among African are almost similar and hence the trend of disease distribution could be similar. A male to female ratio of 1.5:1 obtained by this study was slightly lower than the one reported by Ajike[14] and his colleagues (1.9:1) in Nigeria. This difference could probably be attributed to differences in methodology in conducting these studies. Furthermore, it seems probably males are more prone to develop oral diseases / conditions compared to females in this community. The fluctuations of minor oral surgical procedures performed over the five year period reflect that the diseases / conditions presented for surgical intervention are rare and some of them lack symptoms. They only presented for treatment once they occurred and when they are symptomatic. Also the explanation of the highest number of minor surgical procedures performed in the year 2004 is difficult but it could be most probably due to chance.

Most of the minor oral surgical procedures were performed in the age group of 21-30 and 31-40 similar to the study done in Nigeria which reported the peak age of minor oral surgical procedures to be in the 3rd decade[14]. These age groups are prone to many diseases since they are economically active groups. They face a lot of challenges in their daily life for example what they eat, what they do and where they sleep. They therefore at high risk of developing cancers and other social related diseases like HIV.

Disimpaction was the commonest encountered minor oral surgical procedure with prevalence of 28.8%. The frequency of disimpaction in this study differs from the studies done in Dar es salaam and India which reported prevalence of 21.3%[7,8]. The current study was done in a referral centre where most of the specialized procedures are done following accurate diagnosis. It follows therefore; the difference could be associated with differences in the diagnosis of impaction among these studies. No standardized criteria common to these studies used for diagnosing this condition. However all three studies reported the occurrence of disimpaction to be more frequent in the age 21 years and above. The main cause of impaction is lack of space. The age range in which 3rd molars erupt stated by various authors ranged from 16-25 years[24, 25]. The termination of growth of maxilla has been found to occur at the average ages of 15 and 17 in girls and boys[26] respectively; and that of mandible at 17 and 19 years in girls and boys[27]respectively. Therefore, above 21 years there is insufficiency growth of mandible and maxilla resulting lack of space for the third molars to erupt and become stranded in an abnormal position. That is why surgical removal of an impaction is frequently done at the age of 21 years and above.

Incisional biopsy procedure was the second minor oral surgical procedure found by this study (22.2%). This finding reflects that the population under the investigation were mostly affected by the neoplastic lesions which needed to be confirmed histologically following incisional biopsy. The results that females underwent slight more incisional biopsies 98(11.6%) compared to males 90(10.6%) correlate the study done by Mazyala[28]. However it differs from other study[29] which reported male preponderance. The authors predict that, the difference could be due to variation in social habits and social activities in females and males and hence different risk of developing disease/conditions which needs surgical intervention.

Intermaxillary fixation (IMF) took the 3rd rank (16.3%) among the minor oral surgical procedures performed. This observation differs from other studies[13, 14] which reported the prevalence of IMF to be 20.2% and 13.3% respectively. The explanation of this could probably be due to regional variation in social activities in the population where the studies were conducted. On the other hand It could also be due differences in methodology used in conducting these studies. The results of the present study that IMF was done more in males (13.9%) compared to females (2.4%) paralleled other studies[9, 10, 30]. The probable reasons for these findings are that males in many societies carry activities that are dangerous (e.g. working in construction industries) which exposed them to the risk of succumbing facial fractures. FNAC and Enucleation were the least performed procedures with the frequency of only 0.1%.The reason could be that only few swellings needs FNAC among them being Salivary glands lesions. Majority of swellings or ulcerations usually needs incision biopsy.

Conclusion

Most of minor oral surgical procedures performed at our centre are disimpaction, incisional biopsy, IMF and cystectomy. FNAC was the least performed procedure. The fact that this study is a retrospective study it does not provide a true picture of minor oral surgical procedures performed at our centre. Therefore, there is a need to conduct a prospective study.

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