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Prevalence and surgical morbidity of impacted mandibular third molar removal in the aging population: a retrospective study at the Lagos University Teaching Hospital

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Summary

Prophylactic surgical extraction of impacted third molars is not an uncommon practice in Europe and America. This has been justified on the basis that the risk of surgical morbidity increases with increasing age among other reasons. The purpose of this study is to report the prevalence of impacted third molar extraction and associated morbidity in patients = 40 years of age in our institution. A retrospective review of patients = 40 years of age who required surgical extraction of their impacted third molars between April 2001 and March 2006 at the Lagos University Teaching Hospital was carried out. Data collected included patients' age and sex, tooth/teeth extracted, indication(s) for tooth/teeth extraction, types of impaction, and surgical morbidity (intra- and postoperative complications). A total of 6.3% of patients requiring third molar surgical extraction were 40 years or older. No intraoperative complications occurred in any of the patients. Only 3 patients (9.7%) developed minor postoperative complications (infected socket, dry socket) which were reversible and of short duration). Less than 7% of patients requiring surgical extraction of impacted third molars in our institution were 40 years and above. In addition, minor postoperative complications were seen in only 3 patients. Our result does not support prophylactic surgical extraction of third molars based on the assumption that surgical morbidity increases with age.

Keywords: *Prevalence, morbidity, surgical extraction, third molar, aging population.*

Résumé

Cette revue rétrospective avait pour but de déterminer le taux de l'impact de l'extraction du 3^{ème} molaire et la souffrance associée aux patients de moins ou égale à 40 ans ayant besoin d'une chirurgie pour l'extraction du 3^{ème} molaire entre Avril 2001 à Mars 2006 au centre hospitalier universitaire de Lagos, Nigeria. Les données extraites des fichiers de ces patients inclues : l'âge, sexe, dent extraite, type d'impaction, souffrance

chirurgicale. Au total 6.3% des patients avait besoin d'une extraction chirurgicale du 3^{ème} molaire. Aucun des patients n'avaient des complications intraopératives. Seulement 3 patients (9.7%) développaient des complications mineurs de courte durée qui étaient réversibles. Moins de 7% des patients ayant besoin d'extraction chirurgicale du 3^{ème} molaire avaient plus de 40 ans. Ces résultats ne supportent pas l'extraction prophylactique chirurgicale du 3^{ème} molaire basée sur l'assumption que la souffrance chirurgicale accroît avec l'âge.

Introduction

Surgical extraction of impacted or unerupted third molars is the most common surgical procedure in dentistry [1]. Impacted third molars are known to be associated with the risk of different disorders and complications [2-6]. Despite the fact that there are well established indications for the removal of impacted wisdom teeth, prophylactic removal of impacted third molars free of any pathology is still a common practice in Europe and America [7]. Proponents of prophylactic removal strongly believe that age may be used as an indication for surgical removal of impacted lower third molars (ILTM), as the risk of surgical morbidity increases with increasing age [2,8], among other reasons [5,9-12]. Therefore, early preventive removal between the ages 15 and 21 years has been recommended if normal eruption can not be predicted [13].

In today's clinical practice, treatment options should be evidence-based. Evidence-based practice involves tracking down the available evidence, assessing its validity and then using the best evidence to inform decisions regarding care [14]. In fact, the principles and methods of evidence based dentistry give dentists the opportunity to apply research findings to the care of their patients [14]. What percentages of asymptomatic or non-pathologically involved impacted third molars that are left untreated develop symptoms or pathology later in life? What is the incidence of surgical morbidity associated with third molar surgery in aging population?

This study, therefore aims to report the prevalence and associated surgical morbidity of impacted third molars requiring removal in patients = 40 years of age at the Lagos University Teaching Hospital, Lagos, Nigeria.

Materials and methods

A retrospective review of case notes of patients aged 40 years and above who required surgical extraction of their impacted third molars at the oral surgery outpatient clinic of the Lagos University Teaching Hospital between April 2001 and March 2006 was carried out. Data collected included patients' age, and sex, tooth/teeth extracted, indication(s) for tooth/teeth extraction, types of impaction, and surgical morbidity (intra- and postoperative complications).

Data was analysed using the SPSS for Windows (version 12.0; SPSS Inc, Chicago, IL) statistical software package; and presented in descriptive and tabular forms.

Results

A total of 490 patients had surgical extraction of impacted third molars under local anaesthesia during the period of the study. Out of these patients, 31 (6.3%) were aged 40 years and above (range, 40 to 68 years). Less than 20% (6 of 31) of these were older than 55 years (range, 56 to 68 years). There were 15 (48.4%) males and 16 (51.6%) females. The radiographic analysis of the types of impactions showed that mesioangular impaction constituted 48.4% of cases, followed by vertical (19.4%) (Table 1).

Table 1: Types of impaction, indications for extraction and postoperative complication in patients 40 years and above

Types of impaction	Number (%)
Mesioangular	15 (48.4)
Vertical	6 (19.4)
Horizontal	5 (16.1)
Distoangular	4 (12.9)
Linguoangular	1 (3.2)
<i>Indications for extraction</i>	
Recurrent periocoronitis	23 (74.2)
Caries	4 (12.9)
Not specified	4 (12.9)
<i>Postoperative complications</i>	
None	28 (90.3)
Infected socket	2 (6.5)
Dry socket	1 (3.2)

Lower left third molars were extracted in 15 (48.4%) patients and lower right third molars in 16 (51.6%) patients. Recurrent pericoronitis (74.2%) was the major indication for surgical disimpaction (Table 1). No case of excessive bleeding, mandibular fractures, and other intraoperative complications were recorded. Twenty-eight (90.3%) of the 31 patients had an uneventful postoperative recovery. Three patients (9.7%) developed postoperative complica-

tions (Infected socket=2; Dry socket=1) (Table 1). All the complications were reversible and of short duration.

Discussion

The most common surgical procedure in dentistry is the removal of unerupted or impacted third molars [1]. It is also becoming the most controversial, especially when these teeth are asymptomatic. The conventional rationale for prophylactic removal is the belief that retention of these teeth will subject the patient to health risks because of the potential of their follicular tissue to cause pathologic or functional disorders [1]. Incidence of cysts and tumour development from retained impacted third molars has been reported to vary between 1.4% to 2.3% for cysts [4,15-17] and 0.14% to 2% for tumours [4,9,18]. From this perspective, such surgery is considered an important preventive measure [1].

Some authorities believe that even when the impacted teeth are not currently involved in a pathologic process, clinical experience has shown that many will ultimately create such problems, and would require removal later in life [13,19,20]. But, what percentages of asymptomatic or non-pathologically involved impacted teeth that are left untreated develop symptoms or pathology? This important question can only be answered in a longitudinal study. Although, the present study was retrospective in design, only 6.3% of patients requiring removal of impacted third molars were 40 years and above in our institution during the period of the study. Less than 20% of these patients were older than 55 years. Obiechina et al [21] reported no patients older than 54 years in a series of 338 patients with 473 impacted mandibular third molars at the University College Hospital, Ibadan, Nigeria. Less than 3% of these teeth were removed in patients above 40 years [21]. Kaminishi et al [22] in a recent study in the US reported that 10.5% and 17.3% of patients requiring removal of symptomatic impacted third molars over 2 study periods of 1992 to 1997 and 1997 to 2002 respectively were older than 40 years. The difference in the incidence of patients above 40 years requiring removal of impacted third molars in the two countries (Nigeria and the US) might be explained on the basis of life expectancy. Life expectancy (2006 estimate) in the US is 77.85 years, whereas life expectancy in Nigerian is 47.08 years [23]. The higher the life expectancy, the more the possibility of retained impacted third molar developing symptoms and thereby necessitating removal in aging population. However, it has also been reported that about one in five people in their 30s have at least one unerupted third molar and that these can remain in situ throughout life without pathological changes [24].

Sasano et al [25] reported a low rate of symptoms development due to the presence of third molars in a group of young adult followed for a period between 11 and 27 years. They also found that the status of third molars

showed no relation to the subsequent development of symptoms if good oral hygiene is maintained. Other authors [26,27] have also reported that a large number of impacted third molars do erupt fully, and radiographically apparent impaction in late adolescence should not be sufficient grounds for their prophylactic removal in the absence of other clinical indications.

Mesioangularly impacted third molars were the most frequently seen in the present series in agreement with earlier studies from Nigeria [21,28-30] and elsewhere [27,31,32]. Recurrent pericoronitis was the major indication for extraction in this study. Recurrent pericoronal infection is considered the most common indication for surgical removal of impacted third molars in all age groups [20,21,28,30].

One other reason given for early preventive removal is the consideration that surgery in the older patient is accompanied by increased morbidity. Intraoperative complications during the course of tooth extraction are not uncommon. These may include fracture of the crown, fracture of the roots, fracture of the alveolar bone, maxillary/mandibular fracture, fracture of the adjacent teeth, dislocation of adjacent teeth, excessive haemorrhage leading to unplanned transfusion of blood/blood products, damage to the soft tissue, and even death [33,34]. Postoperative conditions that may complicate extraction of impacted teeth include: alveolar osteitis, inflamed socket, acute/chronic infection, lingual/inferior alveolar nerve anaesthesia/paraesthesia, maxillary/mandibular fracture, and haemorrhage which if excessive may lead to unplanned blood transfusion [34-36].

There are conflicting reports regarding increased surgical morbidity associated with surgical extraction of impacted molars in aging population in the literature. While some authorities [19,20,37] have reported increased risk of surgical morbidity associated with surgical extraction of impacted third molars in aging population, others [34,38,39] have queried the authenticity of such claims. Consequences of surgery having the greatest impact on the patient, patient's family, and surgeon include death, morbidity requiring hospitalization, and finally some form of untoward outcome rendering the patient disabled, such as a fractured jaw or anaesthesia/paraesthesia [34]. In the present series, postoperative complications were seen in 3 (9.7%) patients and were minor in nature. They were dry socket and infected socket and they resolved within 5-7 days after treatment. Obiechina *et al* [28] reported a comparable complication rate of 7.9% (41 of 517 patients) after third molar surgical extraction in patients, majority (69.1%) of who were 25 years or below. These complications included alveolar osteitis (3.5%) and paraesthesia of lingual or inferior alveolar nerves (4.4%) [28].

Haug *et al* [34] in a recent study reported that third molar surgery in older patients (25-99 years) was associated with minimal morbidity, a low incidence of postoperative complications, and have minimal impact on the

patient's quality of life. The authors [34] reported that intraoperative complications occurred with a frequency of less than 1%, and alveolar osteitis (dry socket) was the most commonly encountered postoperative problem and occurred with a frequency of 0.3%. In addition, a recent report [40] on surgical extraction of impacted third molars in patients between 12 and 18 years revealed that 1.3% of the patients developed postoperative complications comprising: infection, inferior alveolar and lingual nerve paraesthesia.

The result of the present study demonstrate that surgical removal of impacted molars in patients 40 years and above was associated with minimal morbidity. This may be attributed to good surgical technique and experience of the surgeons. Less-experienced surgeons have been reported to cause more trauma during extractions [33,41]. Many authors agree that trauma and difficulty of surgery are associated with increased surgical morbidity [33,41-43]. In our clinic, surgical disimpaction of third molars is carried out by senior residents or junior residents under the supervision of a consultant. Early prophylactic surgical extraction of impacted molars based on assumption that morbidity of surgical extraction increases with age does not seem a good clinical practice [44]. Impacted third molar in young adult can erupt correctly without complications [27], and may even prove useful as an abutment for a prosthesis, or orthodontic anchorage, particularly if first or second molar is missing.

Conclusion

Less than 7% of patients requiring surgical extraction of impacted third molars in our institution were 40 years and above. In addition, minor postoperative complications seen in only 3 patients were reversible and of short duration. Our result does not support prophylactic surgical extraction of third molars based on the assumption that surgical morbidity increases with age.

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