PUBLIC HEALTH RESEARCH

Profile of Patients Referred to a Specialist Oral Medicine and Oral Pathology Unit

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ABSTRACT

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Introduction The aim of this study was to determine the profile of patients referred to a specialist oral medicine and oral pathology unit in Kuala Lumpur by reviewing clinical dental records received in Oral Pathology Diagnostic Service (OPDS) in Faculty of Dentistry, UKM from 2001 until 2010.

Methods A total of 547 archival biopsy clinical dental records were reviewed and analysed using SPSS version 17.0.

Results Oral and maxillofacial diseases were frequently seen in female (1.3:1), young adults (30.0%) of Malay ethnicity (64.6%). Most of the acquired specimens were from dental specialists (n=451, 84.8%), particularly from oral and maxillofacial surgeons (OMFS) (n=349, 63.8%) compared to general dental practitioners (GDPs) (n=81, 14.8%). Almost all of the biopsy specimens were of soft tissue origin (n=462, 84.4%), derived from lining mucosa (n=197, 36.0%) and were biopsied excisionally (n=325, 59.4%) more often than by incisional biopsy (n=207, 37.8%). A large proportion of the oral and maxillofacial diseases were of reactive (n=188, 34.4%) and inflammatory (n=121, 22.1%) cause. Tumours are mainly benign (n=69, 12.6%) with only small cases are malignant (n=34, 6.2%). The most common histological diagnoses were accounted by mucocele (n=56, 10.2%), pyogenic granuloma (n=47, 8.6%), fibroepithelial polyp (n=38, 6.9%), radicular cyst (n=33, 6.0%) and periapical granuloma (n=29, 5.3%).

Conclusions This study characterizes the clinical profile of patients seen in our oral medicine and oral pathology unit. Present findings can be used as a reference to the clinicians and pathologists in effective patient management and organization in the future.

Keywords Biopsy cases - Oral and maxillofacial diseases - Prevalence.

INTRODUCTION

Over the past few years, the world's population is aging with improvements in life expectancy due to the advances in hygiene, nutrition and medical sciences[1]. Despite this the global burden of oral and maxillofacial diseases still persists and this may be explained by the changing trends of social-behavioral risk factors, living conditions and lifestyle, as well as the accessibility to the healthcare services. As such, there is a need to ensure that patients requiring specialist oral medicine and pathology care are being appropriately referred to by general dental and medical practitioners who act as gatekeepers of care[2].

Oral medicine and Oral Pathology (OMOP) specialty provides an avenue for general practitioners to refer patients with severe, life-threatening medical disorders or complex diagnostic problems involving the oral maxillofacial region that require ongoing non surgical management[3]. This includes management of oral mucosal diseases, salivary dysfunction, oral manifestations of systemic disease, and orofacial pain. Their existence however seems to be limited to dental fraternity as their role is often overlapped and overlooked by the medical professionals. Moreover, surprisingly, evidence have shown that both medical and dental practitioners have a limited knowledge in the field of OMOP with more than 50% are unable to make clinical diagnosis of oral and maxillofacial diseases[4]. A proportion of dental practitioners in particular showed lack of awareness in identifying the oral cancer risk factor and the application of preventive measures, therefore may have contributed to late identification of potentially malignant and malignant disease. In addition to that, patients in general are unaware of OMOP services hence are likely to seek help on average of 2.5 general healthcare practitioners before resuming being seen by the oral medicine specialist[3]. This posed a significant problem as there may be a diagnostic delay, unnecessary appointments, inappropriate or inadequate patient care, and financial strain to the patient or caregivers[5]. A coordinated and integrated patient care, good communication between medical and dental professions, with a continuous educational measures and the promotion of awareness of the specialty of OMOP is essential to ensure the minimization of improper referrals and thus a better management of healthcare expenditure and hospital resources[2, 5].

Oral Pathology Diagnostic Service (OPDS), Faculty of Dentistry, Universiti Kebangsaan Malaysia (UKM) was formally established in 1999. It provides a clinical diagnostic service and plays an integral role in patient management. Biopsy specimen retrieved from the general dental practitioners (GDPs) or dental specialists are routinely processed for histopathological assessment. A trained oral and maxillofacial pathologist then formulates a specific histological diagnosis in conjunction with the clinical description, photographs, serological and radiographical features[6]. A systematic recording of the archived biopsy specimens and biopsy case reports enhances the development of OPDS clinical dataset and archived materials which are useful for clinical audit and quality improvement, patient care, education, and research purposes[7-9].

There have been several studies of OPDS services rendered at the various dental schools in the UK, Australia, New Zealand, Malaysia, Indonesia, US, Brazil, Canada, Kuwait, Spain and Kenya[7-17]. This signifies that the majority of dental schools around the globe offered histopathology services and there is awareness and demand amongst the dental practitioners. This also demonstrates that these OPDS laboratories have an effective record keeping practices that enable the department to readily generate results for the dental practitioners as well as providing resources for students and researchers.

The aim of this study was to determine the profile of patients referred to a specialist oral medicine and oral pathology unit in Faculty of Dentistry, Universiti Kebangsaan Malaysia, Kuala Lumpur by reviewing biopsies received in OPDS in Faculty of Dentistry, UKM during the 10-year period from 2001 to 2010. OPDS archival biopsy records were used to assess the data.

METHODS

This was a review of clinical dental records involving a total of 547 archival biopsy records registered in the OPDS, Faculty of Dentistry, UKM from 2001 until 2010. Clinical dental records were reviewed from a consecutive sample. Biopsy specimens retrieved are from various organizations (Faculty of Dentistry, UKM, UKMMC [UKM Medical Centre], MINDEF [Ministry of Defence] and private practice).These biopsy case specimens and records were routinely coded under a specific biopsy number for reference. Patient's relevant clinical information was obtained without disclosing the patient's personal information. An inter-examiner calibration using Cohen's Kappa test was conducted prior to data collection to achieve a uniform standardization, reliability and reproducibility of the assessed data between the examiners. A total of 52 biopsy case records has been identified and used for this calibration. If the examiners are in complete agreement then the Cohen's Kappa value (K) equals to 1 (K = 1). If there is no agreement among the examiners other than what would be expected by chance, then the Cohen's Kappa value (K) equals to 0 (K = 0). Our study shows there was almost complete Cohen's

Kappa value (K) agreement between the examiners with the K value of 0.941.

Information gained and assessed from the biopsy case records includes patient's demographic data (age, gender and ethnicity), types and site of biopsy specimen received, types of biopsy procedure conducted, types of dental practitioners (GDPs or dental specialists) involved with their specific dental specialty unit and the types of histological diagnosis issued. To facilitate the organization of data, these histological diagnoses were then further grouped into 12 different diagnostic categories, 10 of which were based upon the orofacial disease processes; reactive, inflammatory, developmental, benign, premalignant, malignant, immune-mediated, fibro-osseous, infections, necrosis and the remaining two were either classified as a normal tissue or non diagnostic. All data retrieved was analyzed using a simple descriptive statistics (frequencies), with Statistical Package for Social Sciences (SPSS Inc., Chicago, USA) version 17.0.

RESULTS

Over a decade, a total of 547 biopsy cases were received at OPDS, Faculty of Dentistry, UKM. A majority (n=473, 86.5%) of the biopsy cases were referred from UKM's dental practitioners (GDPs and dental specialists) working within the dental faculty and UKMMC and with a small percentages was sent by those practicing in the Malaysia's Ministry of Defence (MINDEF) (n=66, 12.0%) and private dental practices (n=8, 1.5%). Overall, there was a considerable fluctuation in the number of cases received, with highest (n=79) and the least numbers (n=32) in the year 2003 and 2007 respectively (Figure 1). Despite this, OPDS continuous to receive biopsy cases, with an average amount of 54.7 biopsy cases per year. In 2009, only 33 biopsy cases were received. This increased to 76 in 2010, a significant increase of 130.4%.

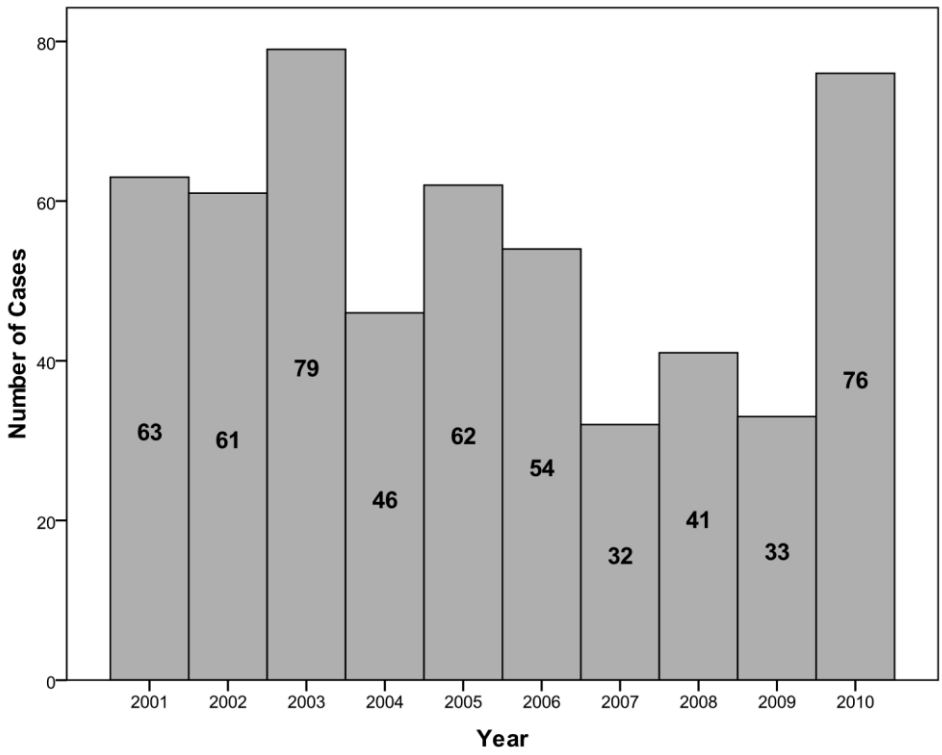

Figure 1 Distribution of biopsy cases received (2001–2010)

Biopsy cases were obtained from patients from a various ranges of age; with the youngest were 3 years old and the eldest were 83 years old. They are divided into 6 different age groups categories; adolescent and teenagers (1-15 years), young adults (16-30 years), adults (31-45 years), middle-aged adults (46-60 years), elderly (61-75 years) and golden citizens (76-90 years). Amongst these, most biopsy cases were derived from young adults (n=164, 30.0%) with the least number from golden citizens (n=3, 0.6%). Female is a predominant gender, with a ratio of 1.3 to 1. Malaysia has a multiracial ethnic population, which consists of Malays, Chinese, Indians and Others (other Bumiputras). The disparity ratio between the major ethnic groups in Malaysia was 7:2:1 (Malay: Chinese: Indian). Patient's occupational distribution was excluded from analysis as this

information could not be thoroughly assessed and was not included in most of the biopsy case records. The demographic distribution of all biopsy cases are summarized in Table 1.

Table 1 Demographic distribution of biopsy cases (2001–2010)

Characteristics	Number (%)
Age group(years)	
1-15	68 (12.4)
16-30	164 (30.0)
31-45	120 (21.9)
46-60	113 (20.7)
61-75	56 (10.2)
76-90	3 (0.6)
Unreported	23 (4.2)
Gender	
Male	237 (43.3)
Female	301 (55.0)
Unreported	9 (1.7)
Ethnicity	
Malay	353 (64.6)
Chinese	122 (22.3)
Indian	44 (8.0)
Others	23 (4.2)
Unreported	5 (0.9)

Most of the biopsy cases were received from dental specialists (n=451, 82.5%) compared to GDPs (n=81, 14.8%). In general, there are ten dental speciality units, with the highest biopsy cases acquired from the Oral and Maxillofacial Surgeons (n=349, 63.8%), followed by oral pathology and oral medicine specialists (n=67, 12.3%) and periodontists (n=16, 2.9%). Only a few biopsy cases were referred from endodontists (n=8, 1.5%, orthodontists (n=6, 1.1) and paediatric dental specialists (n=5, 0.9%).

Biopsy cases are taken from various sites of the oral and maxillofacial region. Almost all of the biopsy cases were of soft tissue origin (n=462, 84.4%), derived either from a lining mucosa (n=197, 36.0%), masticatory mucosa (n=98, 17.9%) and specialised mucosa (n=13, 2.4%). Hard tissue and skin specimens contributed to a small proportion of the total number of biopsy cases received. There are almost equal percentages of the biopsy cases received from the mandibular (n=65, 11.9%) and maxillary (n=62, 11.3%) jaw region. Tooth specimens (n=40, 7.3%) and other specimens (*e.g.* salivary glands and temporomandibular (TMJ) joint) (n=28, 5.1%) were present in small numbers. All dental practitioners performed various types of biopsy, which were mostly excisional (n=325, 59.4%), more so than by incisional biopsy (n=207, 37.8%). Fine needle aspiration biopsy (FNAB) which was utilised in diagnosing benign and fibro-osseous lesions was used in small percentages of cases (n=4, 0.8%) whereas smears which are useful in detecting infectious cases are the least of type of biopsy method used (n=3, 0.5%). All sources of the specimen (types and site) and types of biopsy details are demonstrated in Table 2.

Table 2 Distribution of the sources of specimen (types and site) and types of biopsy (2001–2010)

Characteristics	Number (%)
Types of specimen	
Soft tissue	462 (84.4)
Soft & hard tissue	43 (7.3)
Hard tissue	31 (5.7)
Skin	10 (1.8)
Unreported	1 (0.2)
Site of specimen	
Lining mucosa	197 (36.0)
Masticatory mucosa	98 (17.9)
Mandible	65 (11.9)

Maxilla	62 (11.3)
Tooth	40 (7.3)
Others	28 (5.1)
Specialised mucosa	13 (2.4)
Unreported	44 (8.0)
Types of biopsy	
Excisional	325 (59.4)
Incisional	207 (37.8)
FNAB	4 (0.8)
Smear	3 (0.5)
Unreported	8 (1.5)

FNAB= fine needle aspiration biopsy

Eighty-five histological diagnoses were obtained and grouped into 12 different diagnostic categories, 10 of which were based upon disease processes and the remaining two were either classified as a normal tissue or non diagnostic. A large proportion of the orofacial diseases were of reactive (n=188, 34.4%) and inflammatory (n=121, 22.1%) cause. Oral and maxillofacial tumours are mainly benign (n=69, 12.6%) with only small cases are malignant (n=34, 6.2%). Oral premalignant lesions are rare (n=37, 6.8%), with oral lichen planus (OLP) as the most common type found in this category. Developmental lesions constituted 6.4% of the total number of biopsy cases which most were of dentigerus cyst (n=10, 1.8%). Uncommon orofacial disease categories includes those of immunologically-mediated conditions (n=12, 2.2%), fibro-osseous lesions (n=10, 1.8%) and infectious diseases (n=5, 0.9%). Non-diagnostic (n=16, 2.9%), normal tissues (n=13, 2.4%) necrosis (n=6, 1.1%) accounted for only small number of cases.

The most common histological diagnoses were mucocele (n=56, 10.2%), pyogenic granuloma (n=47, 8.6%), fibroepithelial polyp (n=38, 6.9%), radicular cyst (n=33, 6.0%) and periapical granuloma (n=29, 5.3%). Oral squamous cell carcinoma (OSCC) (n=23, 4.2%) was the most common oral malignant tumour compared to other oral malignancies received (mucoepidermoid carcinoma, verrucous carcinoma, multiple myeloma and chondrosarcoma). Only benign odontogenic tumour were received and the most prevalent tumour was both keratocystic odontogenic tumour (KCOT) (n=18, 3.3%) and ameloblastoma (n=16, 2.9%). Hard dental tissue pathology such as fibrous dysplasia (n=7, 1.3%) and odontome (n=6, 1.1%) was found in limited cases (Table 3).

Table 3 Twenty most common histological diagnoses for biopsies (2001–2010)

Histological diagnoses	Cases received N (%)
Mucocele	56 (10.2)
Pyogenic granuloma	47 (8.6)
Fibroepithelial polyp (FEP)	38 (6.9)
Radicular cyst	33 (6.0)
Periapical granuloma	29 (5.3)
Oral squamous cell carcinoma (OSCC)	23 (4.2)
Healing tissue	19 (3.5)
Fibrous epulis	18 (3.3)
Keratocystic odontogenic tumor (KCOT)	18 (3.3)
Inflammatory cells	17 (3.1)
Oral lichen planus (OLP)	17 (3.1)
Ameloblastoma	16 (2.9)
Non-specific ulcer	11 (2.0)
Denture-induced hyperplasia	10 (1.8)
Dentigerous cyst	10 (1.8)
Epithelial Dysplasia	8 (1.5)
Fibrous dysplasia	7 (1.3)
Squamous cell papilloma	7 (1.3)
Odontome	6 (1.1)
Non-specific mucosal inflammation (NSMI)	5 (0.9)

Certain disease categories were closely related to the patient's demographic factor and the site of specimen. Interestingly, although young adults predominate in most of the disease categories, the middle-aged adults and elderly patients are afflicted more with the premalignant and malignant disease, with more of necrotic disease seen in elderly group. Males seem to be a dominant gender in having benign oral and maxillofacial tumours more so than the females. The vast majority of the pathological specimens received were from Malay ethnic group, accumulating a total of 352 cases, followed by Chinese (n=122) and Indians (n=44) (Table 4). Reactive diseases formed mostly at the lining and masticatory mucosa whereas inflammatory diseases mainly affected the tooth and the maxillary region. Meanwhile, benign oral and maxillofacial tumour seems to develop more in the mandible than maxilla. Oral premalignant and malignant cases are frequently seen occurring at the lining mucosa compared to the other sites (Table 5).

Table 4 Distribution of diseases by demographic factors (2001–2010)

Disease Category	Age group						Gender			Ethnicity					
	A&T	YA	AD	MA	EL	GC	N	M	F	N	m	c	i	o	N
Reactive	34	57	37	34	15	1	178	77	108	185	131	25	20	10	186
Inflammatory	6	42	33	24	10	1	116	51	67	118	75	28	9	6	118
Benign	11	30	15	6	6	0	68	41	28	69	49	17	0	3	69
Premalignant	2	5	9	15	4	1	36	6	28	34	16	12	7	2	37
Developmental	8	9	10	4	2	0	33	18	17	35	27	7	1	0	35
Malignant	0	2	5	16	11	0	34	15	19	34	13	14	6	1	34
Non diagnostic	2	5	2	5	1	0	15	7	9	16	10	6	0	0	16
Normal tissue	1	5	2	1	2	0	11	8	5	13	11	2	0	0	13
Immunologically-mediated	1	3	4	2	2	0	12	4	8	12	9	2	0	1	12
Fibro-osseous lesion	2	4	1	3	0	0	10	4	6	10	7	3	0	0	10
Necrosis	1	1	0	1	2	0	5	4	2	6	2	4	0	0	6
Infections	0	0	2	2	1	0	5	1	4	5	2	2	1	0	5
Total	68	163	120	113	56	3	523	236	301	537	352	122	44	23	541

A&T= adolescent & teenagers, YA= young adults, AD= adults, MA= middle-aged adults, EL= elderly, GC= golden citizens, M=male, F= female, m= malay, c= Chinese, i= Indian, o= others

Table 5 Distribution of diseases by site of specimen (2001 – 2010)

Disease category	Site of specimen							
	Lining mucosa	Mandible	Masticatory mucosa	Maxilla	Specialized mucosa	Tooth	Others	N
Reactive	95	2	59	2	5	1	2	166
Inflammatory	18	13	13	25	9	1	38	117
Benign	11	23	10	17	4	2	0	67
Premalignant	24	1	5	0	1	0	0	31
Developmental	5	14	2	6	6	0	0	33
Malignant	22	3	5	2	0	1	0	33
Non diagnostic	7	1	2	1	2	1	0	14
Normal tissue	4	2	1	2	1	1	0	11
Immunologically-mediated	9	0	1	0	0	1	0	11
Fibro-osseous lesion	0	2	0	6	1	0	0	9
Necrosis	1	4	0	0	1	0	0	6
Infections	1	0	0	1	1	1	0	4
Total	197	65	98	62	13	39	28	502

DISCUSSION

The results show that OPDS, Faculty of Dentistry, UKM received biopsy cases from various dental organizations (UKM, MINDEF and private practice). As expected, the majority of the biopsy case accessions were from UKM's own dental faculty and hospital. This biopsy case accession and oral and maxillofacial disease distribution is apparently lower when compared to other OPDS centres in the world[7-17]and in Australia and Canada they acquired most of their biopsy case specimens from private practice[7, 10]. Some of the biopsy cases were sent to general histopathologist instead and therefore results in fluctuations in the number of biopsy cases received between the periods of 2001 to 2009. Alternatively, this biopsy case accession profile may also reflect the reality that the vast majority of most biopsy cases still goes to the Oral Stomatology Division, Institute of Medical Research (IMR) and the University Malaya (UM), which has long established oral histopathological services in Malaysia. However, by 2010, there was a significant 130.4% increase of biopsy cases received by the OPDS, Faculty of Dentistry, UKM and this is contributed by faculty's new appointment of an oral pathologist on that year. This also clearly reflects that there is still continuous demand and awareness among dental practitioners the importance of biopsy practice and the use of OPDS in early detection and prevention of oral and maxillofacial diseases.

In the current study, the biopsy cases were predominately seen in young adults, middle-aged adults and elderly. This age group distribution is common as most oral and maxillofacial diseases occurred among adult patients, as reported in previous studies[12, 14, 16, 18, 19]. Based on the Demographic Statistics of Malaysian Population 2010, the total population of Malaysia is approximately 28.3 million; 14.5 million men (51.2%) and 13.8 million women (48.8%) in the year of 2010[20]. These data correlates with previous studies which shows that female predominates over the male with the ratio of 1.3:1[12, 14, 16, 19, 21]. This gender predominance was considered normal as women are more concerned and are likely to seek dental care for most of their oral health related conditions[14, 18, 22]. Meanwhile, in the context of ethnicity distribution in Malaysia, it was estimated that there are 14.2 million Malays (50.2%), 6.4 million Chinese (22.6%), 1.9 million Indian (6.7%), 3.5 million other ethnic groups (12.4%) and 2.3 million non-Malaysian citizens (8.1%). The finding of this study has been expected as the Malay population is more predominant than other ethnicities[20]. Although this finding coincidently reflects the current ethnicity composition in Malaysia, it may also be influenced by each ethnicity different values systems, belief, perceptions and attitudes towards seeking dental care[22].

The dominant users of the oral and maxillofacial biopsy procedures were dental specialists. Dental specialists utilized all types of biopsy procedures in almost all oral and maxillofacial disease categories probably because they felt competent and were more skilfully qualified than GDPs[10, 23]. OMFS contribute most of the biopsy cases (63.8%) which corresponds with other studies[7, 9, 12, 15]. It is slightly different in Australia where they had more biopsy cases referral from oral medicine specialists[10]. GDPs invested only in minority of biopsy cases which correlates with those previously reported[8-10]. The reasons as to why GDPs are not performing the biopsy case procedures by themselves was due to lack of training, practical skills and experience, fear of misdiagnosis and subsequent legal action, lack of materials and transport for histopathology[7, 10, 23], It was also suggested some patients do not agree to undergo oral biopsy procedures conducted solely by GDPs. Therefore, GDPs only performed mainly simple excisional biopsies (mostly of reactive, inflammatory and benign lesions)[9, 23].

Excisional biopsy is the most common type of biopsy procedures used on the lining mucosa of a soft tissue. This finding is similar to retrospective analysis of OPDS in UK, Australia and Brazil, where most of the biopsy cases excised for histological examination were of soft tissue origin[10, 11, 15, 16], henceforth correlates with our findings that oral and maxillofacial diseases primarily occurred on those sites. A majority of biopsy cases was diagnosed as reactive lesions (mostly of mucocele, pyogenic granuloma and fibroepithelial polyp) and inflammatory lesions (mostly of radicular cyst and periapical granuloma). This finding was in accordance with an earlier research which suggested that these non neoplastic lesions were common and often it was related to chronic trauma and inflammation from an odontogenic source[7-10, 15, 16, 19, 24].

Radicular cyst is the most frequently encountered inflammatory odontogenic cyst and it appears to be more common than the dentigerus developmental odontogenic cyst[8, 12, 16, 24-26]. This shows odontogenic infections recurs despite endodontic intervention. Dentigerus cyst is generally asymptomatic and are discovered during routine radiographic examination[26], therefore may have contributed to a smaller number of cases.

Oral and maxillofacial tumours are mainly benign with only small cases are malignant. This tumour distribution pattern is similar to other OPDS surveys conducted in UK, New Zealand, Malaysia, Indonesia, US, Brazil, Canada, Kuwait and Spain[7-9, 11-16]. Surprisingly, this differs in Kenya where they have reported more than 60% oral malignancies[17]. In retrospect, the most common type of benign oral and maxillofacial tumour we received are both odontogenic tumours; keratocystic odontogenic tumour (KCOT) and ameloblastoma. Taken together these findings seems to be parallel with those reported in Canada[7] and Kenya[17], but differs significantly from Jordan[19], UK[8], Indonesia[13], Brazil[14] and Spain[16] which shows benign oral and maxillofacial tumours consisting

largely of mesenchymal and salivary gland neoplasms. This indicates tumour type varies widely based upon geographical location.

As expected, oral squamous cell carcinoma (OSCC) is the most commonly histologically diagnosed oral malignancy. This epithelial-derived malignant tumour occurs more often than those of malignant salivary gland or mesenchymal origin[7-10, 12, 14-17, 27]. The present study shows OSCC occurred mostly in the female, middle-aged Chinese patients. However, we found it contradicts with the previous reports in Malaysia where OSCC appears to be more prevalent in male, elderly Indians[12]. The underlying differences are unclear, but it is likely related to the profound changes in the social, behavioural and dietary habits among Malaysians and inevitability worldwide[14, 27, 28]. The most common site for OSCC is lining mucosa and masticatory mucosa which is in concordance with other studies[12, 16, 17, 27, 28].

Some of the histological diagnosis was concluded as non diagnostic due to various technical factors. Diagnosis may not be possible if the specimens are not fixed properly or the amount is small, insufficient or shallow to show the underlying connective tissue in oral mucosal biopsy procedures[6, 8]. Poor handling of the tissue by means of removing tissues with excessive force or placing a tight knot close to the specimen may result in tissues being crushed or damage and subsequently end up with undesired or non-diagnostic result[6]. Thermally-induced laser tissue artefact may also impair the oral pathologist's ability to provide an unequivocal histopathological assessment[29].

There are pertinent association between the disease categories to the patient's demographic factor and the site of specimen. Our result is in concordance with other studies which shows cystic, reactive and inflammatory lesions are seen more in paediatric patients[19, 30] whereas premalignant lesions and malignant tumours are more prevalent in middle-aged adults and elderly patients[21]. The malignant tumours found in this group are mostly epithelial-derived however, in children they are mostly of mesenchymal in origin[30]. Both benign odontogenic and mesenchymal neoplasms are seen more in the younger age group compared to the elderly[17]. Although most disease categories are dominated by females, the benign oral and maxillofacial tumours tended to occur in males, which is consistent with other findings in the literature[17]. Most of the acquired pathological specimens from our OPDS unit are from the Malays, and this was clearly related the current distribution of Malaysian population, where the main population groups is Malay (50.2%), with other population groups compromising of Chinese (22.6%), Indians (6.7%) and Others (12.4%)[20]. Some orofacial diseases are site specific. Henceforth, our data conforms to findings all of these studies[13, 15, 17, 19]. This suggests that all these characteristics could be use as a guideline in establishing differential diagnosis of oral and maxillofacial diseases[14].

CONCLUSIONS

In conclusion, this study characterizes the clinical profile of patients seen in our oral medicine and oral pathology unit. Present findings can be used as a reference to the clinicians and pathologists in effective patient management and organization in the future. A continuous encouragement to the clinicians about the importance of biopsy practice and the use of OPDS are fundamental in maintaining a harmonious organizational relationship as well as in the development of OPDS clinical dataset and archived materials. This may be achieved by conducting a series of lectures and hands-on biopsy workshops for clinicians and better advertised and accessible pathology support. Further nationwide population-based studies between various organizations are needed to further explore the epidemiology of oral and maxillofacial diseases among Malaysians.

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