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DENTAL ASSOCIATION OF MALTA
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Editorial

By Dr David Muscat

Dear colleagues,

At the time of writing this article tanks are currently rolling over the border into Ukraine. The Hammer is knocking on the gates of Kyiv and the Sickle is slicing through the wheat plains of the Pontic steppes.

The bear has come out of the woods and is growling at its neighbour. The cities in the Wild Fields once fought over by the Huns, Ottomans, Catherine the Great, the Cossacks and the Crimean Tatars are now again besieged and the Novorossiya Steppeland as well as the Ukranian Oblasts have taken centre stage.

In the somnolent surface waters of The Black Sea Bottlenose Dolphins dive for mullet, tens of thousands of White Fronted and Red Breasted geese roost and the Lesser Spotted Eagles and the Black Billed magpies go about their daily lives of survival.

Locals mull at the Potemkin stairs and stroll through the Primorsky Boulevard of Odessa and sip espressos uneasily in the beautiful ornate cafes as the red and white sturdy Vorontsov Lighthouse with its one million watt signal light is seen up to twenty two kilometres away.

Thousands of sandbags have been prepared by the locals to halt the Russian advance.

It is commendable that certain dental practices, dental and pharmaceutical companies are sending supplies to the Ukranian refugees in Poland.

The Dental Association has successfully held its yearly AGM on Thursday 24th February and this was also very well attended online.

The DAM is organising a lecture on Dental Trauma by Dr Audrey Camilleri on Wednesday 6 April at Xara Lodge Rabat. This is sponsored by Pro Health.

On 20 March the DAM is organising a Lenten Retreat at the Archbishops' Seminary in Rabat. Father Mark Sultana, our DAM Chaplain, has been appointed Associate Professor, Department of History at the University of Malta.

The DAM Committee has refurbished the office at the Federation of Professional Associations and has left a legacy for future members.

The office was blessed by HE archbishop Scicluna on the 2nd February 2022.Most of the work was done by Dr Noel Manche who was aided by Dr Nicholas Busuttil Dougall.

The work went on over several months and took a lot of time and effort by those involved.

Professor George Camilleri deserves a mention. He has for quite a long time been quietly organising our paperwork and documents at our office. It is quite commendable to have people like him as he offers his services voluntarily.

In this issue, the last issue and in future issues we will feature excellent case reports compiled by Final Year Dental Students at the Dental School of the University of Malta. These reports were done as part of their Oral Medicine and Oral Surgery attachments.

We thank the University of Malta as well as the students, now qualified dentists and their tutors for permission to publish these case reports.

In Malta we now have a plan for structured CPD. This is thanks to the efforts of Dr Ann Meli Attard . Dr Ann Meli Attard, Dr Adam Bartolo and Dr Brian Millar have recently published two papers in the European journal of Dental Education on the study into continuing Professional Education in Malta.

The study was carried out over three years by Dr Ann Meli Attard as part of her Masters in Restorative Dentistry at Kings London.

This was done in conjunction with the Dental Association of Malta whose members will now reap the benefits of this work for generations to come.

The DAM was this year heavily involved in trying to stop non-registered dentists from examining Maltese patients in Malta. In addition, we are trying to stop certain types of blatant advertising from abroad in the local media.

We hope that the worst of the Covid-19 pandemic is behind us. But just as we seem to have solved this problem, we now have to take heed of the very cold icy wind that is blowing in from the East.

The front cover is a picture 'Valletta pen and watercolour' by the artist Jacqui Agius.

Best regards,

David

Dr David Muscat B.D.S. (LON)
Editor / Secretary, P.R.O. D.A.M.

new

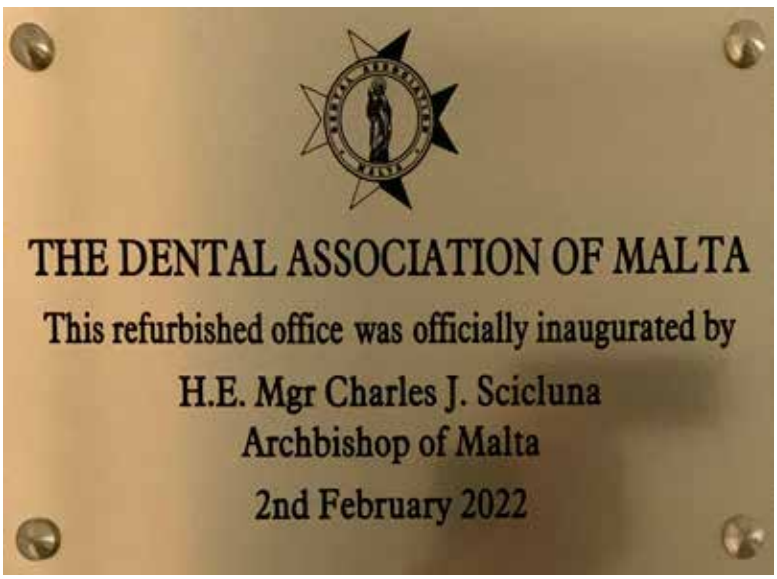
DEEP REPAIR

& DAILY PROTECTION FOR SENSITIVE TEETH

LIFE'S TOO SHORT FOR SENSITIVE TEETH

The Visit By H.E. Archbishop Scicluna

On 2/02/2022 H.E. Archbishop Scicluna officially blessed our newly refurbished office at the Federation of Professional Associations Building in Gzira. He was presented with a book as well as a copy of The Dental Probe Journal. The DAM committee was present, as well as Marcelle Abela, Secretary of the Federation, and Professor George Camilleri who, for the past year, has been busy organising our documents and paperwork in our office. Archbishop Scicluna took an interest in the work the Dental Association carries out, as well as the work done at the Federation in general.



International Relations Officer Report for 2021

By Audrey Camilleri
International Liaison Officer,
Dental Association of Malta

On 19 November 2021 I represented Dental Assocation of Malta at the Council of European Dentists Meeting together with representatives of the Council of European Dentists (CED) Member, Affiliate Member and Observer associations. We met in Brussels, Belgium, under the chairmanship of President Dr Marco Landi.

RESULTS OF CED ELECTIONS

During the plenary session, the CED members were invited to vote for a new President and four new Board Directors. Dr. Freddie Sloth-Lisbjerg (Denmark) was elected as President. Dr. Anna Lella (Poland), Dr. Robin Foyle (Ireland) and Dr. Henner Bunke (Germany) were elected as Directors for the term 2021-2024 and Dr. Ioannis Tzoutzas (Greece) was elected as Director for the term 2021-2022. They join the current CED Directors Dr. Doniphan Hammer (France), Dr. Paulo Melo (Portugal) and Dr. Henk Donker (the Netherlands). The new CED Board assumed its powers on 20 November.

1. DENTAL MATERIALS AND MEDICAL DEVICES

In the course of 2020, the Working Group updated its mandate and continued its activity on relevant issues related to medical devices and dental materials.

The Working Group was invested in the topic of dental amalgam, similarly to previous years. A subgroup dedicated to dental amalgam participated in the European Commission's Final stakeholder workshop: Assessment of the feasibility of phasing-out dental amalgam. Following the publication of the final report on the Feasibility of Phasing-out Dental Amalgam by the Deloitte consultancy, as well as a report by the European Commission, the Working Group replied to both reports.

The members prepared a CED position on dental implants, recommending the implant card as a best practice.

On the matter of cobalt, the Working Group has been reaching out to external stakeholders and has gathered scientific evidence internally to continue exploring the topic.

Other topics of interest were endocrine disrupters and particularly, the Chemical Strategy for Sustainability, titanium dioxide and phthalates.

2. E-HEALTH

Promotion of Artificial Intelligence (AI) and exploitation of the Big Data potential have been identified as top priorities by the current European Parliament and European Commission. In line with the active agenda of the European Institutions on these topics, the Working Group prepared the CED position on AI, covering the impact of AI on dentistry and healthcare and replied to the consultation on the Commission White Paper on the topic.

In addition, the WG has participated in consultations on the Digital Services Act and on Health Data in the light of the General Data Protection Regulation (GDPR), recommending the development of a set of quality

criteria for online platforms reviewing dentists and stressing the need to grant dentists access to relevant health-related information.

In 2021, the WG will continue its work on the eHealth Competency model followed by a set of necessary digital skills specific to dentists, under the chairmanship on Dr. Alexander Tolmeijer, approved in November 2020 as the new Chair of the WG eHealth

3. EDUCATION AND PROFESSIONAL QUALIFICATIONS

The Working Group focused its work on the CED Resolution on the Annex V.3/5.3.1. of the Professional Qualifications Directive. The Working Group replied to the study based on the CED call for update of the subjects lists for dental professionals, to make sure that European dental curricula correspond to the reality and contribute to safeguarding the future of the profession.

Due to the imminent threat posed by the COVID-19 pandemic to the European dental education, the Working Group prepared a statement on the minimum requirements for dental education in times of COVID-19.

The Working Group continued the col laboration with BTF Internal Market on workforce challenges and on potential solutions, focusing on digital skills, public health threats, bureaucracy, corporate dentistry, undergraduate education and attractiveness of the profession.

In 2021, the work will continue focusing on workforce challenges and other education-related issues.

4. ORAL HEALTH

In 2020 the Working Group updated its mandate after merging with the Board Task Force Antibiotics in Dentistry and added to its working agenda the topic of antimicrobial resistance (AMR).

With the launch of the Europe's Beating Cancer Plan, the Working Group was involved in the topic of cancer following the European Parliament Special Committee on Cancer work and participated in the HPV Action Network within the European Cancer Organisation, highlighting the urgency of oral cancer and dentists' involvement in its early diagnosis.

On the topic of vaccination, the Working Group reflected CED's work in the EU Coalition for Vaccination advocacy campaign. Additionally, the CED co-signed the Coalition's Manifesto on vaccination to encourage healthcare professionals to get vaccinated and highlight the key role played by healthcare professionals in the vaccination roll out, as builders of public trust.

In 2021, the Working Group will be focusing on oral health in the context of the COVID-19 pandemic, alongside ageing, AMR and non-communicable diseases.

Continues on page 8.

International Relations Officer Report for 2021

Continues from page 7.

5. CED STATEMENT ON DENTAL TOURISM AND CROSS-BORDER HEALTHCARE

CED members adopted the Statement on dental tourism and cross-border healthcare. The document sets out CED's position regarding dental tourism in the context of the Directive 2011/24/EU on patients' rights in cross-border healthcare and assesses how the Directive's objective to facilitate access to safe and high-quality cross-border healthcare in another Member State has been met. Dental tourism, which prior to the COVID-19 pandemic was a major growth area, is a significant concern with regards to the provision of dental care and treatment and may impact patient safety.

DENTAL TOURISM AND CROSS BORDER HEALTHCARE

In view of the recent situation in Malta , with non EU dentists examining patients who then to go Turkey to get extensive dental treatment done.

The main problem that we encounter is when these patients return to Malta and dentists registered in Malta have to face the failures and complications that may arise.

This CED Statement below is relevant to this situation:

Directive 2011/24/EU on patients' rights in cross-border healthcare ("Cross-border Healthcare Directive"), among others, sets out the conditions under which a patient may travel to another EU country to receive medical care and then receive reimbursement from his home country. It covers healthcare costs, as well as the prescription and delivery of medications and medical devices.

The Cross-border Healthcare Directive provides that if patients are entitled to public health services in their home country, they may choose to access those services in another Member State of the European Union and be repaid the cost if they meet the requirements.

The patients are eligible to be repaid the cost of the public healthcare treatment in their home country, or the cost of their treatment abroad, if that is less. Reimbursement does not include other costs such as travel.

The CED supports the provisions of the Cross-border Healthcare Directive for extended cooperation between Member States, as receiving dental treatment in another Member State is justifiable and beneficial in many circumstances, for instance in border areas, or in cases when patients temporarily or permanently live in another Member State.

However, financial reasons can lead patients to seek treatment abroad for treatment such as complex oral rehabilitations, surgery and cosmetic dentistry which are not covered by most health-care plans.

As in most EU countries patients pay for their own dental care (partly or fully), there has been an increase in patient flows to countries with lower-cost dental care over the last decade or so, which has been encouraged in some cases by packages that include treatments and tourism.

In such circumstances, the tendency to travel to receive extensive, but rapid treatment (dental tourism), may seriously threaten patients' safety. With dental tourism, there is usually very little pre- and post-treatment care, preventive and supportive care which are essential for quality oral healthcare.

In dentistry, although there has been much publicity given to dental patients travelling abroad, a relatively small number seek healthcare in another Member State.

Their decision is not normally solely based on medical necessity, lack of availability of treatment in their home country or the search for higher quality in another country.

Rather the decision is made in relation to the extent of the patient's own financial contribution to the treatment, which may depend on the inclusion and availability of certain treatments within the patient's social security or insurance system. This makes patient mobility in the area of dental care somewhat different to mobility in other areas of healthcare.

AGGRESSIVE ADVERTISING AND DENTAL TOURISM

Many dental tourism clinics, including corporate dentistry clinics, entice patients by offering a compelling comprehensive package that includes dental care plus a vacation, flights, lodging, and airport transfers, all at affordable rates, making dental tourism an

opportunity that patients might regard as an attractive opportunity.

Such offers might incentivize patients to seek unnecessary treatments and may even lead to overtreatment. Misleading commercial offers should be avoided by providing clear and detailed information on the costs of the treatment and extra-costs of the treatment "packages".

Aggressive advertising, often involving marketing experts, and misrepresentation in dental tourism raise some serious issues related to getting proper consent for treatment.

Such actions increase the risk of the public being misled. They may damage the dental profession's reputation and can put a strain on the professional relationship between dentists and their patients.

On the issue of advertising of healthcare services, the CED believes that there is a need for clear rules, in whichever form they might appear at the national level, that follow ethical guidelines and are applied to all those stakeholders advertising dental treatments. Patient safety concerns and the maintenance of the relationship of trust between the dentist and the patient must be the at the core of these rules.

PATIENT SAFETY AND RESPONSIBILITY IN DENTAL TOURISM

Although this happens quite rarely, some treatments do not go as planned, leaving upset patients and apprehensive dentists in a difficult situation. Whereas these patients might save money on the initial treatment, if they subsequently experience complications such as infections, nerve damage, or failed restorations, they might face even higher expenses in the form of complex remedial treatments.

If a patient visits a dental practice in their home country with a failed treatment received abroad, it puts clinicians in a dilemma both ethically and legally, in terms of any remedial work that might be required. This is due to the same liability questions that dentists might face, if they were to accept restoring the patient's dental health and would later fail.

The CED is primarily concerned about the safety of patients, including an adequate treatment plan, and the continuity of care offered to them. In this regard, the CED fears that the commercial drivers that are the foundation of some of the business model in corporate dentistry may, in fact, be detrimental to the health and well-being of patients.

The CED believes that patients considering dental tourism treatments abroad must be informed that quality treatment depends on properly planned care with scope for post-treatment care.

CONTINUITY OF CARE AND DENTAL TOURISM

The CED emphasises the importance of continuity of care and of a strong dentist-patient relationship. Dental treatment often requires a series of visits to the dentist to properly plan and carry out the treatment, and to provide post-treatment care. Where patients spend only a short time in the care of the dentist – as is often the case where patients receive care abroad – the overall quality of the health treatment is difficult to ensure.

CED POSITION

In the light of the above, the CED believes that the quality and safety of healthcare services in relation to dental tourism can best be ensured by:

- establishing clear rules, in whichever form they might appear at the national level, that follow ethical guidelines and are applied to all those advertising dental services
- providing patients with clear information in cases of commercially driven dental tourism;
- ensuring continuity of care and a strong dentist-patient relationship;
- ensuring the appropriate number of visits, including for pre- and post-treatment care, as well as adequate follow-up care of the patient;
- making sure that national authorities do not encourage patients to seek care abroad, where this is driven only by economic reasons;
- providing detailed and separate information regarding the costs of the treatment and the extra-costs included in the "combined offer" or "package", e.g., accommodation, travel, etc.

THE DENTAL ASSOCIATION OF MALTA

Administrative Report for the year 2021

By Dr David Muscat, Secretary – DAM

The Covid-19 pandemic has of course restricted every profession but has impacted the dental profession quite severely. However dentists in Malta put on a brave face and followed instructions from the Health Authorities and we are now slowly getting back to the new normal.

Executive Committee Members Dr Nicholas Busuttil Dougall and Dr Ann Meli Attard formed part of the committee together with members of the University of Malta and Public Health for the establishment of guidelines for safe practice for clinics during the pandemic.

In 2021 the DAM committee managed to hold 12 meetings, most of which were online.

The DAM was instrumental in bringing forward the Covid 19 vaccine as well as the booster for dental health professionals in private practice.

The office of the Dental Association at the Federation in Gzira has been completely refurbished and this is thanks to the efforts of Drs Noel Manche and Nicholas Busuttil Dougall. The office was blessed by Archbishop Scicluna on Wednesday 2 February in the presence of the DAM committee as well as the Secretary of the Federation of Professional Associations.

Dr Meli Attard and Dr Adam Bartolo published two articles in The European Journal of Dental ~Education on the DAM CPD Pilot Project – Developing a framework for Dental CPD in Malta .

The DAM has this year been involved in stopping non registered dentists from overseas examining patients in Malta with a view to carrying out dental treatment abroad in a non EU country.

The DAM committee has met with the Commission of Rights of Persons with Disability regarding the issue of access by wheelchair users.

The DAM has negotiated with dental indemnity insurance companies regarding the wording of the policies so as to only exclude a pandemic rather than all infectious diseases.

Throughout the pandemic in 2021 we still managed to organise three well attended events ,all respecting Covid-19 guidelines.

23/11/21
Dental Indications for Hyperbaric Oxygen by Dr Kurt Magri

28/7/21
Respiratory Protection in Dentistry by Drs Darwish, Shembesh and El-Boghdadly

17/8/21
An update on Regeneration of Gum and Bone for Periodontology and Implant Dentistry by Dr Mishal Sachdev

The DAM is still working on the KA1 CPD project and hopes to put it into action when the Covid 19 situation improves as this will task place overseas.

Our IRO officer Dr Audrey Camilleri has attended two conferences overseas on our behalf.

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SWISS PREMIUM ORAL CARE

Oral Lichen Planus

A Case Report presented for the Final Examination in Oral Medicine, Surgery, Pathology and Radiology of the MDS degree of the University of Malta.

Author: Dr Sean Pace MDS

Supervisor: Dr Adam Bartolo BChD, MSc Pharmacology, MClinDent Implantology (London), Dip.MJDF, Dip.MFGDP(UK), MCGDent(UK), MFDS RCS(Eng), FEA Oral Surgery & Implantology

ABBREVIATIONS USED

DTC	Dental Teaching Clinic
GDP	General dental practitioner
OGVHD	Oral graft-versus-host-disease
IFN	Interferon
MDH	Mater Dei Hospital
OLD	Oral lichenoid diseases
OLL	Oral lichenoid lesions
OLP	Oral lichen planus
OPMD	Oral-potentially-malignant-disorder
OSCC	Oral squamous cell carcinoma
TNF	Tumour necrosis factor
WHO	World Health Organisation

ABSTRACT

Introduction: *Lichen planus is a chronic immunological mucocutaneous disorder with an estimated global prevalence of 0.5-2% for adults. It occurs most commonly in females from the third to the sixth decade of life.*

Case Presentation: *A middle-aged female patient presenting with widespread asymptomatic erythematous lesions with white plaque and reticular striae on the buccal mucosae and the dorsum of the tongue. Based on clinical and histopathological findings, the definite diagnosis was oral lichen planus (OLP). The patient had no prior knowledge of these lesions and never complained of any associated discomfort. This highlights the importance of investigating oral mucosa for any potentially malignant lesions, during every dental visit.*

Conclusion: *This case report emphasises the need to promote routine oro-mucosal examinations by dental practitioners during dental visits for early diagnosis of OLP and other potentially malignant lesions. This will allow for optimal case management and the ability to offer adequate recall programmes for monitoring of any potential malignant transformations. Regular recall is crucial for OLP patients when considering the significant potential malignant transformation rate ranging between 0.4% and 5% over an extended period of 6 months up to 20 years after OLP diagnosis.*

KEYWORDS

Oral lichen planus, oral lichenoid lesions, dental recall, oral potentially malignant disorders.

INTRODUCTION

Lichen planus is a chronic immune-mediated condition of unknown aetiology with an estimated global prevalence of 0.5-2% of adults. It is a mucocutaneous disorder which occurs mostly in the third to the sixth decade of life and is twice as common amongst females than males (1).

This case report is focused on a middle-aged female patient diagnosed with lichen planus after clinical and histopathological evaluation.

The patient had no previous knowledge of her extensive intra-oral lesions, until she attended for a dental emergency appointment after approximately 2 years without visiting the dentist.

This highlights the importance for patients to attend for regular recall visits and for dentists to examine oral mucosa at every dental visit.

CASE PRESENTATION

A 34-year-old female patient presented at the Dental Teaching Clinic (DTC) at Mater Dei Hospital (MDH), after being referred by her general dental practitioner (GDP), who had noted widespread intra-oral lesions ranging between white plaque, reticular striae and erythema. The oro-mucosal lesions were identified during a dental emergency visit, two weeks before the visit at the DTC.

The patient had no prior knowledge of these lesions and never complained of any associated discomfort. This emphasises the importance for GDPs to investigate the oral mucosa for any potentially malignant lesions during every appointment.

The patient has diabetes mellitus type II which is well-controlled with metformin. She claimed to drink around 8 units of alcohol during the weekend and had been smoking one pack of cigarettes daily for 18 years.

However, the patient claims that she had recently stopped all tobacco use. The patient reported a family history of diabetes, stomach cancer and pancreatic cancer.

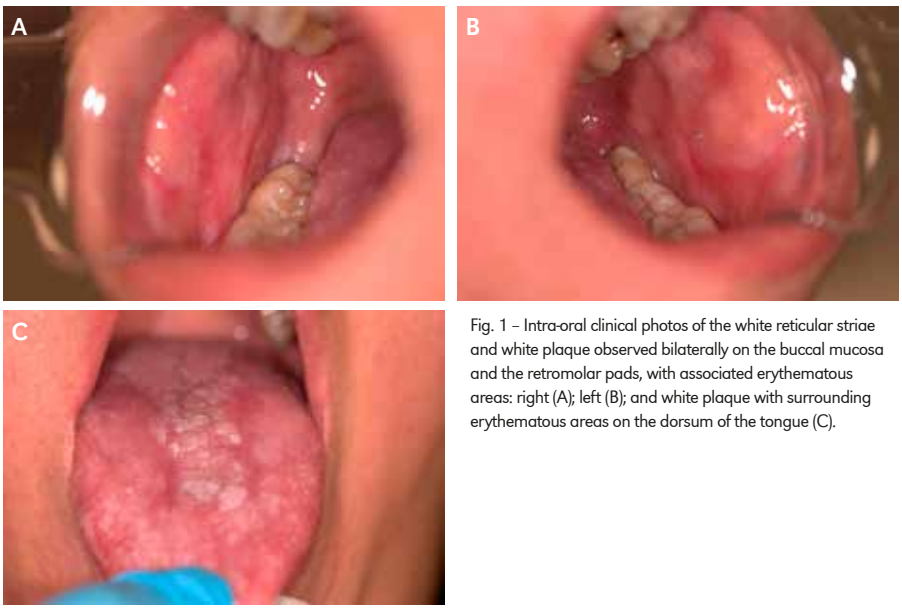

Fig. 1 – Intra-oral clinical photos of the white reticular striae and white plaque observed bilaterally on the buccal mucosa and the retromolar pads, with associated erythematous areas: right (A); left (B); and white plaque with surrounding erythematous areas on the dorsum of the tongue (C).

Nothing abnormal was noted extra-orally. On intra-oral examination, white reticular striae and white plaque were observed bilaterally on the buccal mucosa and the retromolar pads, with associated erythematous areas, as observed in the intra-oral photos below (Fig. 1).

More pronounced white plaque with erythematous areas were noted along the dorsal surface of the tongue (Fig. 1). All lesions could not be wiped off with a gauze.

Based solely on this clinical presentation of the case, the differential diagnosis included:

1. Oral lichen planus (OLP)
2. Oral lichenoid lesions (OLL) (Oral lichenoid drug/contact reactions)
3. Erythroleukoplakia

An incisional biopsy was performed, the tissue specimens were stored in 10% neutral buffered formalin and sent for histopathological analysis. Two representative tissue samples were taken: one from the dorsum of the tongue and another from the right buccal mucosa, via elliptical incisions under local anaesthesia.

The wound edges were approximated with interrupted sutures to promote wound healing by primary intention, as seen in Fig. 2. Post-op instructions were explained and a prescription for chlorhexidine mouthwash and oral analgesics was provided.

General oral hygiene instructions, smoking cessation advice and advice on reducing alcohol consumption were all reinforced before patient was discharged. A follow-up review appointment done after 1 week confirmed successful healing of the surgical sites (Fig. 3).

The histological findings, as presented in figures 4 and 5 below, showed characteristic features of OLP.

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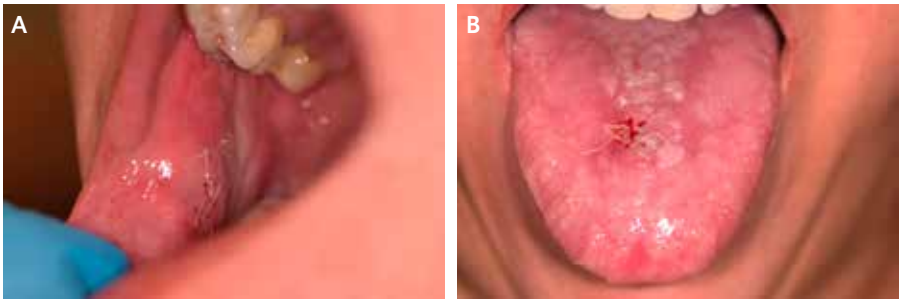

Fig. 2 – Intra-oral post-op clinical photos showing the two sutured sites of incisional biopsies: one on the right buccal mucosa (A) and another on the dorsum of the tongue (B).

Oral Lichen Planus

Continues from page 13.

The clinical and histological findings reported, led to the definite diagnosis of OLP. This was explained to the patient with reassurance that there was no histological evidence of dysplasia.

However, the patient was alerted of the potentially malignant transformation of OLP lesions. Thus, 3 monthly reviews were scheduled, to keep the oral lesions under regular monitoring and continue motivating the patient to eliminate or reduce other risk factors for malignancy.

DISCUSSION

Lichen planus is a chronic mucocutaneous disorder that is relatively common, especially amongst middle-aged females, as seen in this case.

A recently published global prevalence rate for OLP stood around 1%, with the highest rate recorded in Europe - 1.4%. (1)

The oral cavity is most commonly the first site affected in OLP however, 15% of patients have or eventually develop cutaneous lesions. Other extra-oral mucosal sites could also be affected. (11)

In this case, solely oral lesions were detected, and considering these statistics, the patient was warned to look out for any extra-oral mucocutaneous lesions that might develop later. A dermatological consultation was also recommended.

Lichen planus is a condition of unknown aetiology with multiple potential risk factors, including genetics, family history, psychological factors, diet, drugs, diabetes, immunodeficiency, infections and others.

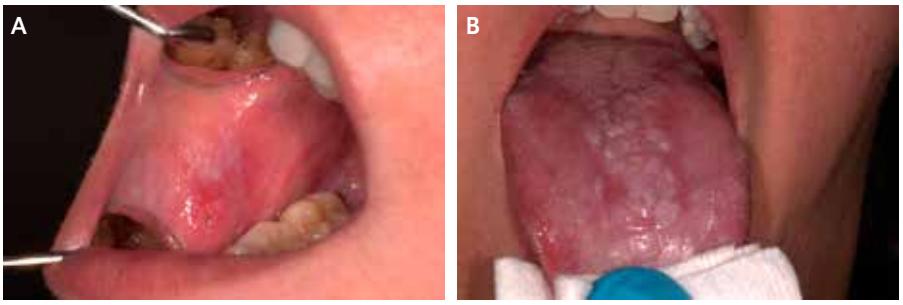

Fig. 3 – Intra-oral clinical photos showing healing of the surgical sites at the right buccal mucosa (A) and at the dorsum of the tongue (B) after 1 week from the biopsy procedure.

There are several factors from the patient history that might be contributing to lichen planus in this case e.g., anxiety, diabetes mellitus and oral hypoglycaemic drugs, amongst others. (3)(10)

The pathogenesis of lichen planus is still being researched. However, it is believed to be a cell-mediated immune reaction, specifically mediated by T-lymphocytes to an unknown exogenous or endogenous antigen in the epithelium, which in turn leads to apoptosis of basal keratinocytes.

The genetic polymorphism of T-helper cytokines involved in the pathogenesis of OLP, is thought to be the determinant factor in whether both oral and cutaneous lesions develop (TNF- α associated) or only oral lesions occur (IFN-c associated). (9)

Oral lichen planus typically presents as bilaterally symmetrical white reticular striae, However, the clinical presentations for OLP can vary as listed in table 1.
These clinical types of OLP, can present alone or mixed together.

The buccal mucosa, tongue and gingivae are the most commonly effected sites. (10)

Due to the similar clinical presentations of OLP with other conditions (listed in table 2), histopathological tests are required to compliment clinical findings, for a definite OLP diagnosis. Aside from diagnostic confirmation, histopathological assessment is crucial to exclude dysplasia and malignancy (14).

Thus, biopsy procedures are required to obtain a representative tissue sample of the lesion, which is sent for histopathological studies.

A correct biopsy should be a well-planned surgical procedure focusing

OLP Clinical Presentation
Reticular (Wickham's striae)
Linear
Papular
Plaque
Atrophic
Erosive
Bullous
Ulcerative

Table 1 – List of different clinical presentations of OLP.

Clinical conditions to exclude in the diagnosis of OLP	
Oral lichenoid lesions	Chronic ulcerative stomatitis
Oral lichenoid contact lesions	Erythema multiforme
Oral lichenoid drug reactions	Mucous-membrane pemphigoid
Oral graft-versus-host disease	Lichen planus pemphigoid
Lichenoid lesions in a betel quid user	Lichen sclerosus
Oral Leukoplakia	Discoid lupus erythematosus
Oral Erythroplakia	Systemic lupus erythematosus
Oral Erythroleukoplakia	Paraneoplastic pemphigus

Table 2 – List of clinical conditions to be excluded in the diagnosis of OLP adopted, from the 2020 WHO consensus report on OPMD (14).

on correct selection of tissue site, selection of correct biopsy technique and proper submission of the specimen to the laboratory. (5)

Caution should be taken to avoid intralesional LA administration, preventing epithelial vacuolation and distortion of the tissue sample.

In this case, two incisional biopsies were taken, one from the dorsum of the tongue and another from the right buccal mucosa.

Two separate tissue specimens were necessary due to the extent of the lesions and the variation in the clinical presentation on the dorsum of the tongue compared to the buccal mucosa (5).

Toluidine blue could have been another useful tool for the biopsy, as a marker for potentially malignant sites with primitive research showing around 88% sensitivity and 74% specificity (4).

Alternatively, light-induced fluorescence visualization appliances e.g., VELscope® Vx (LED Dental, Vancouver, Canada) could have also been useful in this regard. with both sensitivity and specificity reported at around 98% (15).

The clinical and histological findings of this case, satisfy the most recent diagnostic criteria of OLP, shown in table 3 below. Diagnosis of OLP has been a controversial subject for many years.

In fact, after the first diagnostic criteria published by the WHO in 1987, there have been at least 4 proposals to amend the original criteria.

The 2020 WHO consensus report on OPMDs, presents the most recent diagnostic criteria for OLP, based on previous proposals (Table 3).

The most recent classification, classifies OLP as one of three main types of oral lichenoid diseases (OLD) as listed in table 4.

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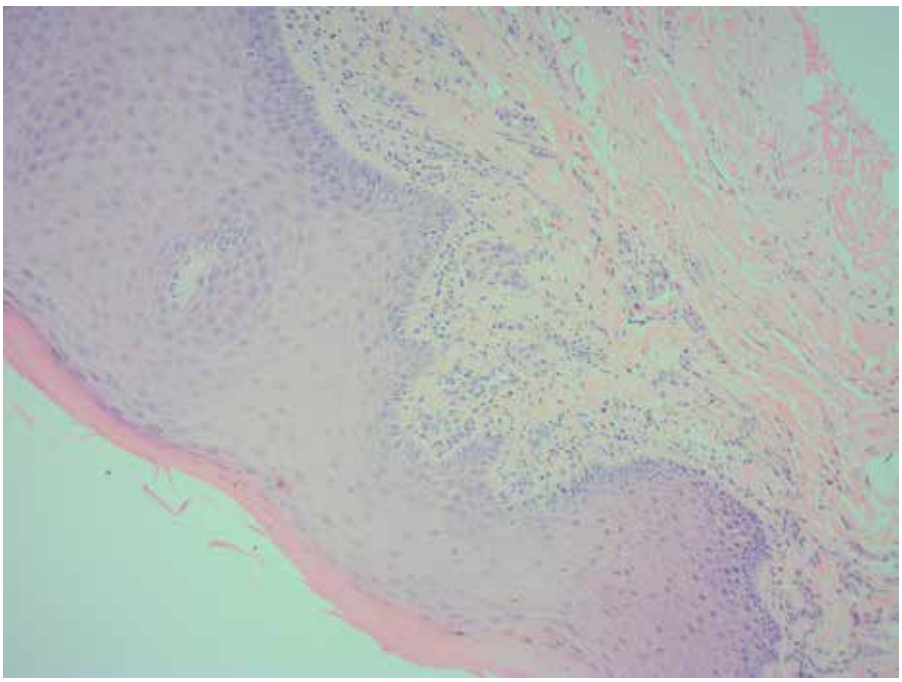

Fig. 4 – Microscopic photo of the specimen with H&E staining under low power view at original magnification x100 showing, stratified squamous epithelium with well-defined epithelial layers and underlying lamina propria. There is evidence of epithelial acanthosis, hyperkeratosis and hypergranulosis. Dense band-like lymphocytic infiltrate noted in the papillary layer of the lamina propria. Saw-toothed rete ridges are also evident in this view.

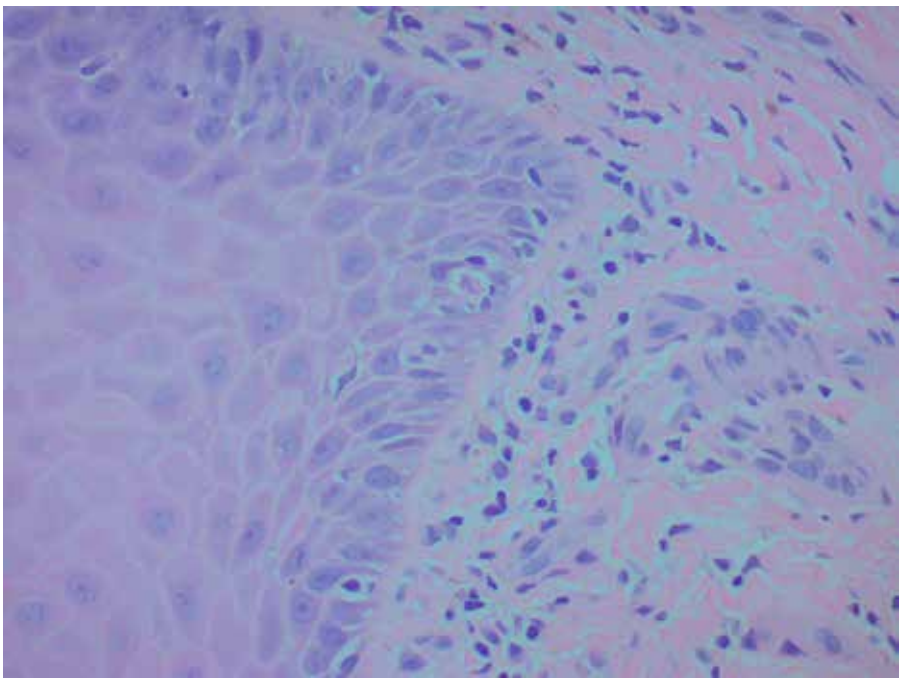

Fig. 5 – Microscopic photo of the specimen with H&E staining under high power view at original magnification x400, showing lymphocytic infiltrate along the papillary layer of the lamina propria. There is evidence of lymphocyte exocytosis into the stratum basale of the epithelium, with basal cell vacuolar damage. Civatte body formation in the stratum basale is also evident.

Oral Lichen Planus

Continues from page 15.

Patients with typical clinical and histological presentations of lichen planus, may be challenging to differentiate from other OLDs, listed in table 4 (3).

In this case, the patient hasn't had any allogenic transplants and no evidence of contact with any potential irritants at the lesion sites, thus lichenoid contact lesions and oral graft-versus-host-disease (OGVHD) could be excluded.

In this case, the patient presented with diabetes mellitus type II well-managed with metformin which, along with other hypoglycaemic drugs, has been associated with OLLs (3).

However, the patient is: not complaining of any associated symptoms related to the oral lesions; has not observed any signs of cutaneous lesions; and the current hypoglycaemic treatment is successfully managing the patient's diabetes.

Therefore, after consulting the patient's medical practitioner, the decision was taken to continue the same hypoglycaemic drug regimen without any changes, as the risks far outweigh the benefits. (3)(11)

Lichen planus may last for several years and is likely to recur with characteristic periods of exacerbations and remissions. As the case presented here, mostly would only require regular monitoring and general supportive therapy for maintaining good oral hygiene, smoking cessation, avoiding excessive alcohol consumption and eliminating oral sources of irritation e.g., ill-fitting dentures.

Continues on page 18.

Diagnostic criteria for OLP	
Clinical criteria	i. Presence of bilaterally symmetrical white lesions affecting buccal mucosa, and/or tongue, and/or lip, and/or gingiva ii. Presence of a white papular lesions and lace-like network of slightly raised white lines (reticular, annular, or linear pattern) with or without erosions and ulcerations iii. Sometimes presents as desquamative gingivitis
Histopathological criteria	i. Presence of a well-defined band-like predominantly lymphocytic infiltrate that is confined to the superficial part of the connective tissue ii. Signs of vacuolar degeneration of the basal and/or supra basal cell layers with keratinocyte apoptosis iii. In the atrophic type, there is epithelial thinning and sometimes ulceration caused by failure of epithelial regeneration as a result of basal cell destruction. A mixed inflammatory infiltrate may be found

Table 3 (far left) – Data adopted from the 2020 WHO consensus report on OPMDs, showing the latest list of diagnostic criteria of OLP (14)

Oral Lichenoid Diseases	Definition
Oral lichen planus	A chronic inflammatory disorder of unknown aetiology with characteristic relapses and remissions, displaying bilaterally symmetrical white reticular lesions, with or without plaque, atrophic, erosive and ulcerative areas.
Oral lichenoid lesions ***(Oral lichenoid reactions)***	Oral lesions with lichenoid features which lack typical clinical or histopathological appearances of OLP, i.e., possibly asymmetrical or are reactions to dental restorations or are drug-induced
Oral graft-versus-host-disease	Clinical and histopathological presentations similar to oral lichen planus in a patient experiencing an autoimmune, multi-organ complication after allogeneic hematopoietic cell transplantation

Table 4 (left) – List of definitions of the three main types of oral lichenoid diseases adopted from the 2020 WHO consensus report on OPMDs (14)

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Oral Lichen Planus

Continues from page 16.

Topical steroidal therapy (e.g., triamcinolone oro-mucosal paste) is often necessary to alleviate symptomatic cases. OLP cases with desquamative gingivitis, widespread oral ulcers or recalcitrant lesions may require additional topical immunosuppressants (e.g., cyclosporine mouth rinse).

Systemic steroids (e.g., prednisone) should be used for cases when topical therapy is ineffective or for OLP cases with concomitant extensive cutaneous lesions. Systemic steroids for OLP should be administered for brief periods (≤ 1 week) and abruptly withdrawn; or for longer periods with gradual tapering down of the dose. (10) (11)

Regular recall programme is especially important when one considers that OLP is classified by the WHO as an oral-potentially malignant disorder (OPMD) (14).

The maximum risk of malignant transformation has been reported between 3-6 years after OLP diagnosis, but the average time for malignant transformation can extend from a few months to more than 10 years (1). Thus, it is recommended that review visits for all OLP patients are maintained for several years or life-long (10).

At least two peer-reviewed studies published in 2004 which followed 402 and 1028 patients in Turin, Italy (12) and Gothenburg, Sweden (13) respectively, showed higher risk of oral squamous cell carcinoma (OSCC) for OLP patients compared to the general population.

However, evidence on the malignant potential of OLP is still limited and the subject currently remains controversial. Several researchers seem to have found consensus on a rate ranging between 0.4% and 5% frequency of malignant transformation over periods of 6 months to 20 years of case reviews, with an annual rate of 0.2% to 0.5% of OLP cases becoming malignant. (2)(6)(11)

In a recent meta-analysis, researchers understand that the variations in the rates of malignant transformations are possibly due to the persistent controversies surrounding the classification of OLP and the different diagnostic criteria of OLP proposed along the years. (2)

Continues on page 20.

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Oral Lichen Planus

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Recent studies have indicated that particular attention should be given to cases with atrophic and erosive lesions on the tongue, as these are associated with higher risk of malignant transformation (2).

In addition to this, tobacco use and alcohol consumption, have both been identified as contributors to the risk of malignant transformation of OLP.

Thus, this case is at a higher risk of malignant transformation, as she presented with plaque and atrophic lesions on the tongue and had been exposed to tobacco and alcohol for many years. (6)(7)(8)

CONCLUSION

This case report emphasises the need to promote oro-mucosal examination by dental practitioners during every routine dental visit. I

n fact, this patient had no prior knowledge of her OLP lesions until they were noted by her private dentist during an emergency dental visit.

This clearly highlights the pivotal role that every dental practitioner can play to identify potentially malignant lesions as early as possible.

Routine oral examinations are crucial, since OLP and other conditions, including OSCC, may present solely by asymptomatic oro-mucosal lesions, particularly in early stages when patient management can be easier and more successful.

Earlier diagnosis of OLP is important to keep the patient under review especially when considering that OLP lesions can have significant malignant potential.

Finally, I believe the aim of future research should be two-fold. Firstly, analysing further the malignant potential of OLP. Secondly, reviewing past proposals and developing a finalised list of diagnostic criteria of OLP.

PATIENT'S CONSENT

Informed written consent was obtained for patient management and participation in this research exercise. This can be made available upon request.

ACKNOWLEDGEMENTS

I will be forever grateful to my tutor, Dr. Adam Bartolo who made this report possible through his exceptional guidance.

Special thanks go to Dr. Nicholas Busuttil Dougall for carrying out the surgical biopsy procedure and Dr. Alexandra Betts for her histopathological expertise.

I would also like to thank Dr. Maria Luisa Gainza-Cirauqui for her assistance with this report.

I am extremely grateful to the patient for kindly consenting to participate in this case report presentation

Finally, I am in debt to my friends, family and the entire staff at the faculty of dental surgery at the University of Malta, for their continuous support throughout my studies.

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Peripheral Giant Cell Granuloma

A Case Report presented for the Final Examination in Oral Medicine, Surgery, Pathology and Radiology of the MDS degree of the University of Malta.

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ABSTRACT

A peripheral giant cell granuloma is an exophytic gingival growth, usually purplish in colour of around 2cm in diameter. It is usually associated with bleeding on provocation and can occasionally be ulcerated. Although the aetiology is unknown it is said to be associated with local irritation and chronic trauma. There is a female predilection and it is more commonly found in the mandible as opposed to the maxilla.

A 20-year-old male presented with a lump on the buccal gingiva between the upper right canine and first premolar. The investigations that were carried out included radiographs, biopsy and blood tests. The incisional biopsy that was taken confirmed the presence of osteoclast-type multinucleated giant cells. Clinical and radiological findings supported the presence of a peripheral giant cell granuloma. An excision of the lesion under local anaesthetic will be carried out and the patient will be reviewed following the surgery.

Unlike many other pathological lesions, peripheral giant cell granuloma cannot be diagnosed solely through histology. Therefore, the clinician must be proficient enough to be able to corroborate a diagnosis through clinical and radiological findings.

KEYWORDS

Peripheral giant cell granuloma, multinucleated giant cells, radiological assessment, surgical excision.

INTRODUCTION

A peripheral giant cell granuloma (PGCG) is an exophytic gingival growth that usually presents as a painless, purplish-red lump in the gingiva.

It was formally known as 'peripheral giant cell reparative granuloma' but this term is no longer being used as PGCG is universally accepted nowadays {Kumar et al, 2017}.

The term giant cell granuloma also includes central giant cell granuloma (CGCG) which is an intraosseous non-proliferative lesion, less common than PGCG but more destructive {Vasconcelos et al, 2013}.

It can be classified as aggressive or nonaggressive according to the clinical, radiological and histological behaviour {Pinheiro da Rosa et al, 2018}.

Peripheral giant cell granuloma has a tendency to increase in size although rarely exceeds 2cm in diameter {Shadman et al, 2009}, however masses in excess of 5cm have been reported {Mannem and Chava, 2012}.

On palpation, the lesion may have a firm or soft consistency and may be occasionally ulcerated {Patil et al, 2014}. It can be sessile or pedunculated {Abu

Gharbyaha and Assaf, 2014}, and is commonly associated with bleeding on provocation.

The aetiology of PGCG is essentially unknown, however it is suggested that local irritation and chronic trauma are causative factors.

Injury to the gingiva and the periodontal ligament is said to initiate a reactive hyperplastic response in the periosteum {Ertugrul and Genc, 2016}.

Theories suggest that the lesion may originate from osteoclasts or macrophages but the origin of the multinucleated giant cells is still unknown {Rodrigues et al, 2015}.

Local irritating factors that may contribute to the aetiology would include tooth extraction (which is the main traumatic factor), ill-fitting prosthesis, malocclusion, poor restorations, food packing and calculus.

Poor oral hygiene and low socio-economic status have also been linked as predisposing factors. Hormonal disturbances and hyperparathyroidism secondary to renal failure have also been associated with PGCG {Adlakha et al, 2010}.

With regards to the incidence of PGCG there is some variation in the literature. Some studies state that the peak incidence for males is in the second decade whilst that of females is in the fifth decade {Abu Gharbyaha and Assaf, 2014}, and other studies state that the peak incidence of PGCG in general is between the fourth and sixth decades of life {Rodrigues et al, 2015}.

It is also stated that there is a peak incidence during the mixed dentition phase of around 33% in patients under 20 years of age {Nekouei et al, 2016}. The oral incidence for PGCG may vary from 5.1% to 43.6% and there seems to be a female predilection of about 1 : 1.5. PGCG affects the mandible more commonly than the maxilla in a ratio of approximately 2.4 : 1 {Patil et al, 2014}.

PGCG is histologically characterized by a non-encapsulated highly cellular mass of osteoclast-type multinucleated giant cells in a background of ovoid and spindle-shaped mesenchymal mononuclear stromal cells in the deeper connective tissue.

Areas of haemorrhage and extravasated red blood cells are also frequently seen {Tandon et al, 2012}. Fibroblasts and hemosiderin deposits are also characteristic of the histology {Zeba et al, 2015}.

However, histology alone is not sufficient to be able to make a diagnosis since peripheral and central giant cell granuloma cannot be distinguished histologically. Therefore, radiological investigation is essential to confirm the diagnosis.

For PGCG no significant radiological findings are characteristic as opposed to CGCG where a radiolucent lesion is usually observed that may be associated with tooth displacement and root resorption.

Studies have shown that superficial erosion of the alveolar bone and destruction of interdental bone may occur in PGCG, as well as widening of the periodontal ligament at the apex of associated teeth {Adlakha et al, 2010}.

Treatment of PGCG usually involves excision of the lesion down to the periosteum with either a scalpel, electrocautery or lasers under local anaesthetic {Zeba et al, 2015}. Certain studies reported that removal of aetiological factors, mainly calculus, through a full mouth scaling was also carried out prior to surgical excision {Rodrigues et al, 2015}.

Patient follow-up after surgery is important to monitor any signs of recurrence.

Recurrence for PGCG is relatively low and ranges from 5-11% in certain studies {Abu Gharbyaha and Assaf, 2014} to 5-70.6% in other studies {Rodrigues et al, 2015}.

In general, the recurrence rate is around 10% and generally depends on how well the surgical excision of the lesion was carried out {Barros de Alencar et al, 2018}.

CASE REPORT

A 20-year-old patient, who had presented with a lump in the upper right buccal gingiva, was referred by a general dental practitioner to the Dental Department at Mater Dei Hospital in April 2019.

The lump was first noted by the general dental practitioner three weeks before this appointment. The patient also noted bleeding on brushing in this region but no associated pain.

On examination the lesion was 2cm in diameter, located on the buccal gingiva between the upper right canine and first premolar involving the papilla and extending to the buccal mucogingival junction (Figure 1). It was reddish-purple in colour with a broad base.

On palpation, the lump was firm but soft. A Pseudopocket of 5.5mm was also present buccally between the mesial aspect of the upper right first premolar and the distal aspect of the canine.

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Peripheral Giant Cell Granuloma

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Although the clinical findings indicated a benign lesion, the following differential diagnoses of an exophytic lesion in a 20-year-old were considered; pyogenic granuloma, peripheral giant cell granuloma, brown tumour of hyperparathyroidism, central giant cell granuloma and peripheral odontogenic fibroma.

Malignant entities such as Kaposi sarcoma and squamous cell carcinoma are a possible diagnosis but very rare considering the age of the patient. In order to get a conclusive result, this merited an incisional biopsy.

An orthopantomograph and periapical radiographs were taken for further investigation (Figure 2). Radiographs showed no evidence of a radiolucent lesion as well as no signs of root resorption, displacement of teeth or bone destruction, thus excluding the presence of a central giant cell granuloma.

An incisional biopsy was taken to further investigate the lesion. The histology report (Table 1) confirmed the presence of osteoclast-type multinucleated giant cells.

Sections showed intact and unremarkable squamous epithelium over proliferation of spindle cell and numerous multinucleated giant cells with haemosiderin deposits and capillary sized vessels. Bone fragments are absent (Figure 3).

To exclude the presence of a brown tumour of hyperparathyroidism, the patient was sent for blood tests.

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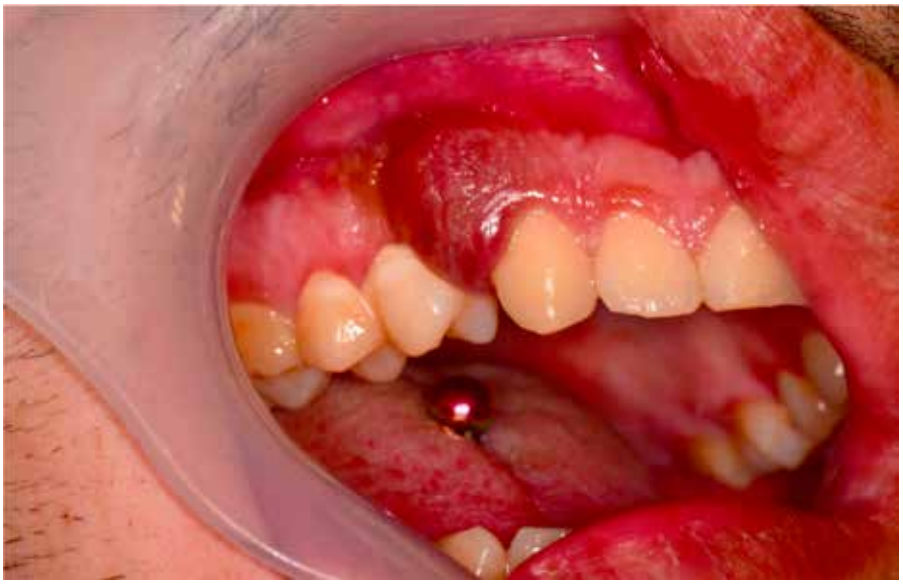
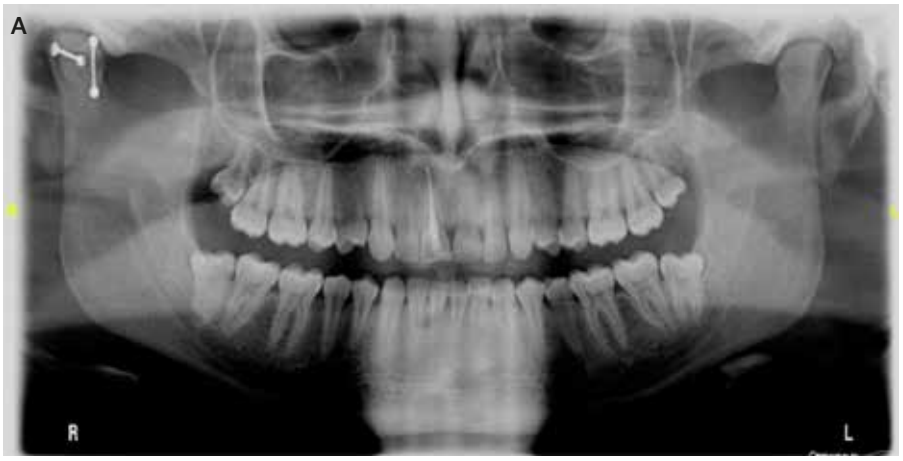


Figure 1: Photograph at initial presentation of lesion, showing a reddish lump between the upper right canine and first premolar.



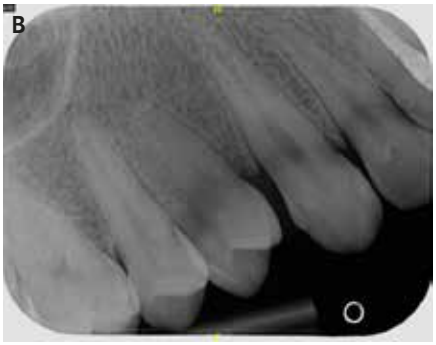
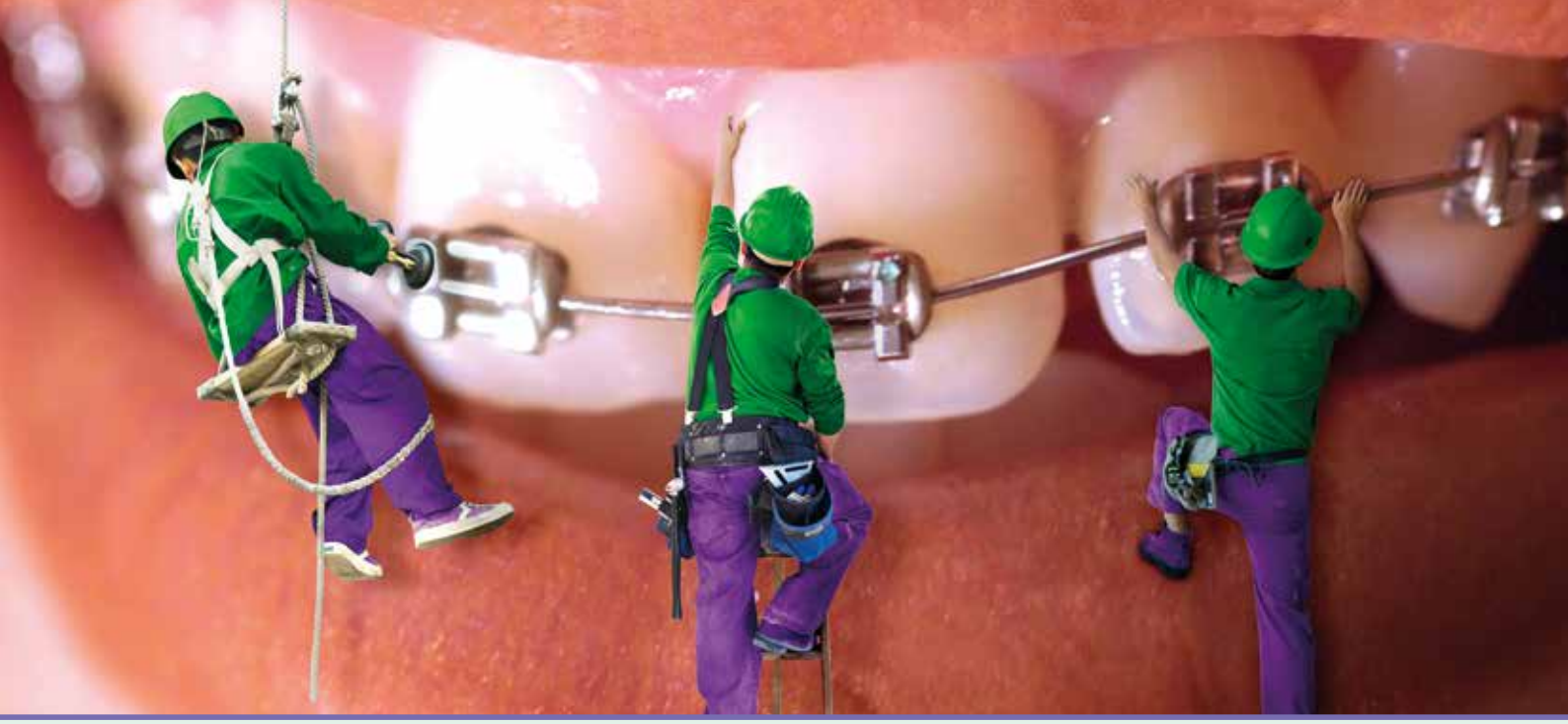


Figure 2: Figure (A) is an orthopantomograph. Figure (B) is a periapical radiograph of the upper right region. Both views show no significant findings and are consistent with PGCG.



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Peripheral Giant Cell Granuloma

Continues from page 24.

In particular, serum calcium and parathyroid hormone were tested (Table 2). The results of these tests came back as normal. A consultation appointment was scheduled with the dental surgeon prior to treatment.

The consultation with the oral surgeon was held in November 2019. It was confirmed that treatment would include a surgical excision of the lesion under local anaesthetic. Peripheral giant cell granuloma is usually treated by completely excising the lesion down to the periosteum, followed by thorough examination of local irritating factors and adequate haemostasis.

Post-operative treatment may involve prescription of a chlorohexidine mouthwash and follow up visits to assess for any signs of recurrence {Kumar et al, 2017}.

DISCUSSION

The case was a typical presentation of a peripheral giant cell granuloma. Although there is a higher predilection for females, this patient is male and 20 years old which is coherent with Abu Gharbyaha's study that stated the peak incidence for males is within the second decade of life {Abu Gharbyaha and Assaf, 2014}.

The patient presented with poor oral hygiene and calculus that may have contributed as an aetiological factor. Many studies report that local irritating factors such as calculus and food impaction could initiate such a lesion {Shadman et al, 2009}.

When a patient presents with some form of oral mucosal lesion, a differential diagnosis is first

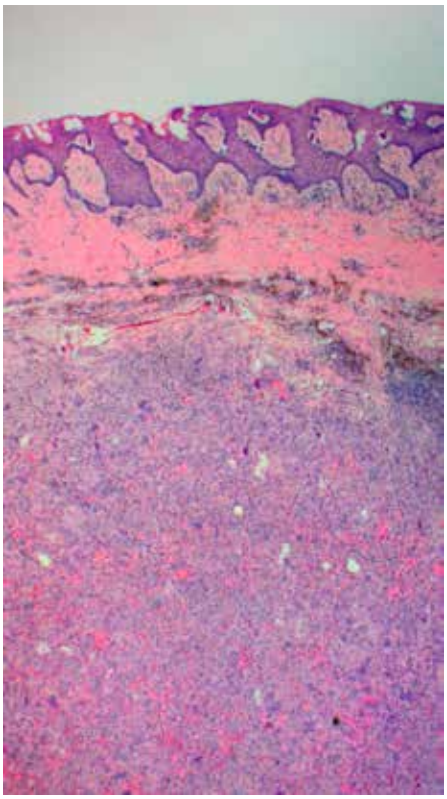

Figure 3: (a) Low power view (x100 magnification) shows the surface stratified squamous epithelium overlying the lamina propria. Some pigmentation can be observed over a circumscribed unencapsulated mass.

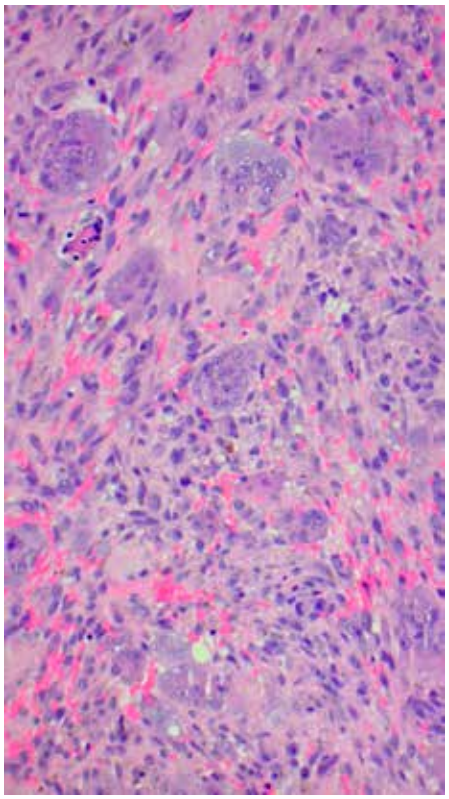

Figure (b) High power view of the mass (x400 magnification). Mononuclear cells are admixed with osteoclast-type multinucleated giant cells. Lymphocytes, hemosiderin deposits and fresh haemorrhage can also be observed.

Table 1: Histopathology findings

Specimen	Soft tissue lump oral mucosa upper gingiva incisional biopsy
Macrospocipic examination	Two strips of mucosa which measure 12mm x 2mm x 5mm and 9mm x 5mm x 1mm respectively.
Microscopic examination	Sections show intact and unremarkable squamous epithelium over proliferation of spindle cell and numerous multinucleated giant cells with haemosiderin deposits and capillary sized vessels. Bone fragments are not seen.

Table 2: Blood test results

Blood test	Result	Normal range
Alkaline phosphatase (serum)	53	40-129U/l
Calcium (serum)	2.41	2.15-2.55mmol/L
Phosphate (serum)	1.44	0.87-1.45mmol/L

formulated in order to have a systematic order of exclusion. In this case, the differential diagnosis for a lump in the gingiva in a 20-year-old male included the following; pyogenic granuloma, peripheral giant cell granuloma, brown tumour of hyperparathyroidism, central giant cell granuloma and peripheral odontogenic fibroma.

Even though clinical findings suggested a lesion of benign origin, malignant entities such as Kaposi sarcoma and squamous cell carcinoma should also be considered especially if the patient was older.

In addition, rarer forms of malignancies including angiosarcoma, lymphoma and even metastasis may need to be considered especially in older patients {Nekouei et al, 2016}.

In order to narrow down the differential diagnosis, an incisional biopsy was carried out. The histological report confirmed the presence of osteoclast-type multinucleated giant cells. Had the biopsy shown a form of malignancy then treatment and management would have differed and been planned accordingly and more aggressively.

In this way, the differential diagnosis has been narrowed to three possible causes; brown tumour of hyperparathyroidism, peripheral giant cell granuloma and central giant cell granuloma. These three conditions cannot be distinguished through histology since their histological findings are identical.

That is a high cellular mass of osteoclast-type multinucleated giant cells in a background of mononuclear stromal cells and extravasated red blood cells with hemosiderin deposits {Tandon et al, 2012}. In order to exclude brown tumour of hyperparathyroidism, the patient was sent for blood tests which resulted in normal levels of serum calcium and parathyroid hormone thus confirming the absence of this condition {Abu Gharbyaha and Assaf, 2014}.

The last two possible diagnoses were therefore peripheral giant cell granuloma and central giant cell granuloma.

Since these two cannot be differentiated through histology or blood tests, the clinician plays a significant role in determining the diagnosis based on clinical and radiological findings.

Radiological findings suggested the presence of PGCG since there was no bone resorption or destruction observed. In CGCG, radiological findings tend to be more significant since most often a unilocular or multilocular radiolucent bone lesion is observed and is often associated with root resorption as well as displacement of associated teeth.

Moreover, bone expansion and occasionally perforation of the cortical plate can also be identified {Pinheiro da Rosa et al, 2018}.

A correct diagnosis is essential because treatment and management of the patient will differ accordingly. Treatment for PGCG usually involves surgical excision down to the periosteum under local anaesthetic {Ertugrul and Genc, 2016}.

Some studies also reported carrying out a scaling appointment for full mouth debridement prior to having the surgical excision. Removal of local traumatic factors and maintaining an adequate level of oral hygiene is also important {Cayci et al, 2014}. The treatment carried out would differ if the diagnosis was that of central giant cell granuloma.

Although central giant cell granuloma is a non-neoplastic condition, its behaviour is more aggressive and merits a more invasive approach as opposed to PGCG.

Unlike PGCG, its aetiology is relatively unknown, some reports state that local and systemic factors as well as certain genetic mutations may contribute to its formation however there is no definite evidence. CGCG tends to display a varied clinical behaviour, ranging from a slow asymptomatic growth to a fast painful growth involving perforation of the cortical plate.

Ulceration may also be present as well as definite radiological findings. Treatment involves surgical resection with a wide rim of bone followed by thorough curettage. It is also suggested to provide combined pharmacological therapy through local application of calcitonin, corticosteroids and subcutaneous injection of interferon-2α.

This is important due to its high recurrence rate that ranges from 37.5% to 70% {Vasconcelos et al, 2013}. Thus, the distinction between PGCG and CGCG is essential in both the management and follow up of the patient.

CONCLUSION

Unlike many other pathologies, diagnosing a peripheral giant cell granuloma is not determined solely through the histology report.

Continues on page 29.

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Peripheral Giant Cell Granuloma

Continues from page 27.

A total of three different investigations are needed to identify this lesion correctly including radiographic findings, an incisional biopsy and blood reports. In this case, the dentist plays a very vital role in interpreting the clinical and radiological findings in order to achieve a conclusive diagnosis.

Establishing the correct diagnosis is essential for future management of the patient since treatment depends greatly on the diagnosis. Thus, the clinician must be well aware of these cases and must be proficient in being able to diagnose a lesion without relying solely on the histology.

PATIENT CONSENT

The patient discussed in this case report was under the care of the oral surgery department at Mater Dei Hospital where he verbally consented to examination and treatment of the condition he presented with.

After the treatment plan was thoroughly discussed and written consent was gained for treatment, the patient also consented to have clinical photographs taken and have the process and management of the condition reported for the purpose of this case report.

ACKNOWLEDGEMENTS

I would like to express my appreciation to my supervisor Dr. Adam Bartolo who has assisted me through this case report. I am very grateful for your help and for investing your time in me.

I am also very grateful for the assistance provided by Dr. Alexandra Betts in interpreting the histopathology reports and Dr. David Muscat for his help in publishing this case report.

I would also like to thank the oral surgery department at Mater Dei Hospital who guided me in closely following up the patient described in this case report.

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A case review about oral leukoplakia and the underestimation of non-dysplastic leukoplakia and other risk factors with malignant transformation

A case report presented for the Final Examination in Oral Medicine, Surgery, Pathology and Radiology of the MDS degree of the University of Malta.

Author: Dr Martina Cristiano MDS

Supervisor: Dr Maria Luisa Gainza Cirauqui D.D.S.,M.D.S.(Spain),Ph.D.(UPV/EHU, Bilbao)

ABBREVIATIONS USED

MT	Malignant Transformation
OL	Oral Leukoplakia
OPMD	Oral Potentially Malignant Disorder
WHO	World Health Organization
HPV	Human Papilloma Virus

ABSTRACT

Introduction: *Oral Potentially Malignant Disorders (OPMDs) are conditions considered as an aetiological factor for carcinogenesis. Several characteristics increase their potential for MT. These include; gender, age, habits, grade of dysplasia and the clinical features especially non-homogenous lesions. Oral Leukoplakia is one of the most commonly detected OPMDs and has one of the highest MT rates depending on its association with other aetiological factors of carcinogenesis.*

Case Presentation: *In this report, we present a case of a white lesion on the buccal mucosa on a young female patient. A white homogenous plaque with a corrugated surface surrounded by an erythematous border was noted in the right buccal mucosa.*

Conclusion: *This case may be considered of low risk of MT due to its clinical features and histological report, however, recent studies have shown a substantial number of non-dysplastic lesions that underwent MT. We will discuss in this report the importance of thorough follow-up of the patient to identify any possible changes that may lead to a malignancy. Furthermore, the COVID-19 pandemic that emerged in early 2020, has complicated the management of OPMDs in most of the world. Approaches and guidelines for the re-call of patients during the pandemic will also be discussed in this case report.*

INTRODUCTION

The incidence of oral cancer is increasing in many countries around the world and cases are being detected at an earlier age.

In 2010, in Europe, oral and pharyngeal carcinomas were the 7th most common type of cancer (Garavello et al., 2010), with the highest incidence in France and Hungary and the lowest in Greece and Cyprus. (Diz et al., 2017).

According to Garavello et al, the mortality rate for Hungary is of 21.1 in 100,000. (Garavello et al., 2010). A lower rate was observed in The World Life Expectancy report since, the age adjusted mortality rate in France was 3.96 in 100,000 whilst the rate of Cyprus was 1.25 in every 100,000 people.

As stated by the World Health Organization (WHO) in 2018, oral cancer on its own, was listed in the 23rd position as a cause of death in Malta.

Furthermore, Malta ranked 86th in the world with an age adjusted mortality rate of 3.27 per 100,000. (World Life Expectancy, 2020).

The aetiology of Oral Cancer is multifactorial and includes external aetiological factors, primarily the use of tobacco in any form and excess alcohol consumption. Other known risk factors include, Human Papilloma Virus (HPV) and solar radiation. (Mortazavi et al., 2019).

From a population survey performed by Macrotrends, it resulted that in Malta, 25.5% of men and women above fifteen years were smokers. However, these statistics excluded the use of smokeless tobacco. (Macrotrends, 2020).

Another important aetiological factor of carcinogenesis is the presence of an Oral Potentially Malignant Disorder (OPMD) in the oral cavity.

The rate of MT of OPMDs varies according to the condition and the association with other aetiological factors of oral carcinogenesis including, genetic and epigenetic changes and the abovementioned external factors.

To date, researchers and clinicians have few tools that help in determining which lesions may turn into a malignancy. According to the literature consulted, the prediction of the risk of MT has been most successful by using the severity of epithelial dysplasia if present.

Dysplasia is architectural disturbance accompanied by cytologic atypia such as anisonucleosis, anisocytosis, nuclear and cellular pleomorphism, nuclear hyperchromasia and keratin pearls within the rete ridges.

Dysplasia can be classified into mild, moderate and severe depending on the proportion of epithelium that is affected. Oral Leukoplakia is one of the most commonly detected OPMDs. (Warnakulasuriya & Ariyawardana, 2016).

Oral Leukoplakia (OL) is defined by WHO as, "a predominantly white patch or plaque that cannot be characterized clinically or pathologically as any other disorder".

Therefore, OL is diagnosed out of exclusion. OL can occur anywhere in the oral cavity, the most common sites are the buccal mucosa, lateral border of the tongue and the floor of the mouth. (Pentenero et al., 2011).

Clinically, OL can be either homogenous, showing as a flat plaque, with an even colour and contour, or else non-homogenous, presenting with a mixed red-white colour or an irregular, nodular or verrucous surface. (Mortazavi et al., 2019).

The distinction is important because non-homogenous lesions have a higher risk of MT since they're more likely to present dysplasia. (Narayan & Shilpashree, 2016).

Primarily, the main aim of management of OL is to prevent and reduce the risk of MT and early detection if MT occurs. A biopsy is crucial when every possible cause is excluded and when the lesion persists beyond 2-4 weeks. (Field et al., 2015).

Furthermore, cessation of risk activities such as smoking and excessive alcohol consumption is advised as the lesion may regress in size. (Field et al., 2015). If the lesion doesn't improve, surgical treatment, is recommended especially when dysplasia is present.

However, regular monitoring should be maintained for all patients with OL, even those patients who were treated. (Kumar et al., 2013). In this report, we present a case of a white lesion on the buccal mucosa of one-month evolution on a young female patient with a smoking history of ten years.

Although this case may be considered of low risk of MT, recent literature supports the thorough follow-up of the patient to identify any possible changes that may lead to a malignancy.

A discussion on the considerations of management of low risk OL will follow the presentation of the case.

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A case review about oral leukoplakia and the underestimation of non-dysplastic leukoplakia and other risk factors with malignant transformation

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CASE PRESENTATION

A 27-year-old female patient attended a private dental clinic in September 2020 complaining of discomfort in her palate which had started a few days earlier. As a casual finding, a white plaque was observed in the right buccal mucosa.

The patient is a regular attender and had attended the practice in August 2020 for a scaling. The patient had no medical conditions and took no medications.

However, she smoked 15 cigarettes per day for the past ten years, with a 7.5 pack-year smoking history. The patient referred to drink alcohol socially.

On clinical assessment, no abnormalities were detected during the extra-oral examination. Lymph nodes weren't palpable neither swollen.

On intra-oral examination, the patient presented with good oral hygiene. On exploration of the oral mucosa, the anterior palate was traumatically inflamed from eating hot food a few days before.

Coincidentally, a white homogenous plaque with a corrugated surface surrounded by an erythematous border was noted in the right buccal mucosa. The plaque extended from the mesial surface of tooth 47 to the retromolar area (Figure 1).Trauma in the area was excluded.

A clinical differential diagnosis between oral leukoplakia, oral lichen planus and oral squamous cell carcinoma was given and a biopsy was performed.

An incisional biopsy was taken from the centre of the lesion and from the erythematous border. The sample was sent for histopathological analysis.

The histopathological analysis showed hyperorthokeratosis, hyperplasia of the epithelium and chronic inflammation on the lamina propria. No dysplastic changes were noted. (Figure 2).

Given the clinical appearance, the short time of evolution, the smoking history and the histopathological findings, a clinical diagnosis of oral leukoplakia was given.

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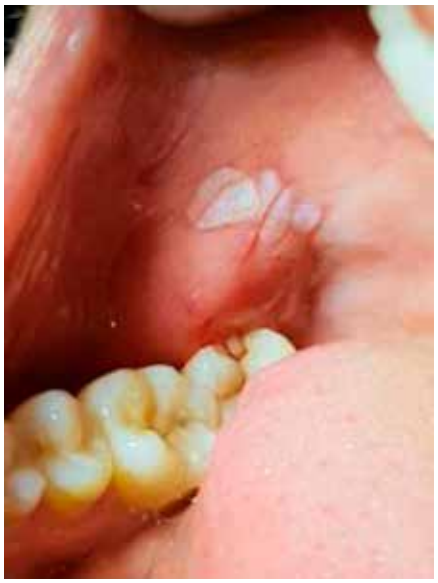

Figure 1: Showing a white homogenous plaque with a corrugated surface surrounded by an erythematous border in the right buccal mucosa

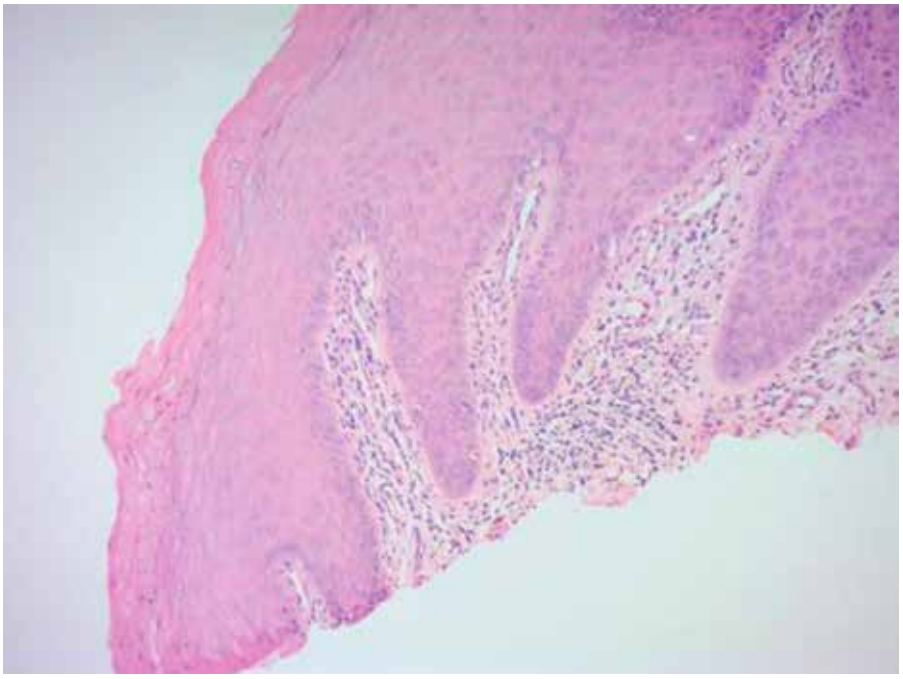

Figure 2: Medium power view showing mucosa covered by thickened parakeratinised stratified squamous epithelium with elongated rete ridges and underlying inflammation. H & E stain. Original magnification x200.

A case review about oral leukoplakia and the underestimation of non-dysplastic leukoplakia and other risk factors with malignant transformation

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The diagnosis was explained to the patient emphasizing in the risk of MT. Smoking cessation advice was given and the patient was advised to attend regular three-month review appointments.

The patient was scheduled for a three-month review appointment in December, following the biopsy since given its extension, the plaque was not completely removed. The patient didn't attend the three-month review appointment.

To date of publication of this case report, the patient hadn't attended for a review appointment, after several attempts from the clinician.

DISCUSSION

Oral Leukoplakia is referred to as an OPMD, previously called a precancerous lesion.

The term OPMD was greatly adopted by the scientific community since precancer conveys a message that the lesion is likely to develop into cancer whereas not all lesions may transform. (Narayan & Shilpashree, 2016).

Unfortunately, the term OPMD fails to differentiate lesions which are more at risk of MT such as erythroplakia. Therefore, it's important to identify lesions with a higher risk of MT by careful clinical and histological examination.

Furthermore, the risk of MT of OL increases depending on different factors associated with oral carcinogenesis, such as gender; tobacco, alcohol and betel consumption; HPV; genetics among others. (Narayan & Shilpashree, 2016).

According to the meta-analysis performed in 2016, a tendency of MT was noted in females and smokers. These results are quite relevant to this case since the patient is a female and a smoker, which makes the lesion at a higher risk of transformation.

The reason of a higher predisposition of MT in females is still unknown. (Narayan & Shilpashree, 2016). Nevertheless, MT is more commonly observed in advanced age. (Narayan & Shilpashree, 2016; Warnakulasuriya & Ariyawardana, 2016).

Furthermore, the lateral border of the tongue and gingiva were found to be at a higher risk for MT when combined with certain habits. Areas such as the buccal mucosa, floor of the mouth and the palate can be affected in different populations depending on the other factors of exposure. (Narayan & Shilpashree, 2016).

On the contrary, Pentenero et al. 2011 observed, in an Italian population, a strong relationship between tobacco smoking and the occurrence of both dysplastic and non-dysplastic lesions in the buccal mucosa and floor of the mouth.

When compared to the other sites, it was evident that non-dysplastic lesions in the buccal mucosa and floor of the mouth, were six times more common in smokers. Furthermore, alcohol and smoking combined together during social events, a habit stated by the patient of this report, was found to have a higher risk for lesions in the buccal mucosa and floor of the mouth.

Moreover, it was evident that smokers who presented with an OPMD were seven years younger than other patients who didn't smoke. (Pentenero et al., 2011.)

This factor should be considered in this case since she's still 27 years old. The histopathological analysis showed absence of dysplasia in the sample.

Although dysplasia is currently the most used tool to predict MT, white lesions without dysplasia, such as the one observed in this patient, should not be taken lightly.

A meta-analysis performed in 2016 analysed results of studies in which patients with OL had been followed-up for a period of time. They observed a substantial number of cases where hyperkeratosis without dysplasia underwent MT. (Narayan & Shilpashree, 2016).

Furthermore, a recent cohort study, reported a significant portion of non-dysplastic OL (39.6%) that, progressed to OSCC. (Chaturvedi et al., 2020).

Notwithstanding, other studies continue reporting that lesions with moderate or severe dysplasia have a higher chance of MT. (Warnakulasuriya & Ariyawardana, 2016; Jayasooriya et al., 2020).

MT of an OPMD depends on multiple factors, among which we should consider may be patient specific. With such conflicting evidence, it's significant to take all risk factors into consideration when managing a patient with an OPMD.

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A case review about oral leukoplakia and the underestimation of non-dysplastic leukoplakia and other risk factors with malignant transformation

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First of all, any white patch which persists beyond 2-4 weeks should be biopsied after excluding all other possible causes to establish if there is a degree of dysplasia or malignancy.

Furthermore, it's important to advise the patient about the cessation of risk activities as the lesion may regress in size and the malignant potential will reduce. (Field et al., 2015). Researchers support the importance of frequent follow-ups of the patient from the moment the lesion is identified. (Kumar et al., 2013).

OMPDs are managed in different ways. A study suggested the surgical removal of all OL which are less than 2-3cm in size even those which are non-dysplastic. (Field et al., 2015).

Different modalities of surgical removal include; conventional surgery or laser excision. The entire excision of the lesion with an adequate margin of normal epithelium should be resected.

However, this may not be feasible when extensive lesions are present due to post-surgical morbidity. Nowadays the use of lasers is increasing since they're more site-specific, conservative, minimally invasive and cause less intraoperative haemorrhage. Patients experience less post-operative swelling, pain and heals with minimal scarring.

Nevertheless, surgical excision of the lesion doesn't prevent future recurrence (Kumar et al., 2013). Although surgical removal of the lesion is highly recommended, patients who present with extensive OL throughout the oral cavity and those with high risks associated with surgery, can be managed conservatively by using chemopreventive agents.

These include; vitamins A, C, E, green tea, anti-inflammatory drugs and must be reviewed routinely. (Kumar et al., 2013). Notwithstanding, continuous monitoring should be maintained for all patients with OL and even those with surgically-excised lesions. (Kumar et al., 2013).

This is because the MT of OL is multifactorial and depends on a case-by-case basis. Lesions with an increased risk of transformation and those which require routine follow-up include; lesions occurring in females, lesions on the lateral border of the tongue, gingiva, floor of the mouth and buccal mucosa.

Furthermore, homogenous and non-homogenous leukoplakias in any of the sites mentioned above should call attention of the clinician. (Narayan & Shilpashree, 2016).

Different guidelines have been published for re-call of patients with OL. This varies between different countries, since re-call of patients in the UK is every 6-12 months (Kumar et al., 2013), whilst in the USA re-call is every 3-6 months and a re-biopsy every year (Villa & Woo, 2017).

Therefore, taking into account all of the findings and recommendations, we think that with regards to this case, the patient should be recalled every 3-6 months for reviews to ensure that the lesion will not transform and go undiagnosed. Although the patient was made aware of the importance of these appointments, she did not attend to her three-month review appointment.

The COVID-19 pandemic has complicated the management of OPMDs. Guidelines on the management of patients with OPMDs with epithelial dysplasia were issued to help clinicians on how to follow-up their patients during these unprecedented times.

As a summary, experts have recommended that many re-calls are done through the phone and if possible, clinical photographs are taken by the patient and sent to their clinicians. Nevertheless, if changes are noted the patient will be provided with a face-to-face appointment (McCarthy, Fedele, Ho and Shaw, 2021).

However, these recommendations are very concerning since patients might not be aware of any changes occurring in the lesions and may not be able to provide clinical photographs to their clinicians, which may result in failure of early detection of transformed lesions.

CONCLUSION

OL is by far the most common OPMD in the oral cavity. Its incidence and the rate of MT is multifactorial and varies across different countries around the world. Data collection of OL in different populations vary.

More uniform and structured guidelines are required to have standard data collection for proper analysis. Lack of consistency of data presentation in some studies makes it more difficult to draw conclusions of which lesions are more likely

to transform. Furthermore, there's conflicting evidence between studies on the MT of non-dysplastic OL.

On the other hand, all studies agree on the significance of regular follow-ups for early detection of MT, irrespective of the degree of dysplasia. Regular monitoring of OMPDs is crucial since one can prevent an unfortunate circumstance when MT occurs and diagnosis is delayed. Lastly, structured guidelines on long-term prospective studies are required to have a better idea of lesions that transformed and those that regressed.

PATIENT'S CONSENT

Informed written consent was obtained for patient management and participation in this research exercise. This can be made available upon request.

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Clear Correct Tour D'Europe

By Dr David Muscat

On 21 March 2022 Bart Enterprises organised a Clear Correct event at Salini .This was presented by Dr Daniel Neves, Clear Correct Global speaker and Dr Jan Marc Muscat , Clear Correct Ambassador, advisor and KOL.

Clear Correct is powered by Straumann.

Dr Jan Marc Muscat outlined the ten rules for aligners:

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