Original Article

A Clinical and Histopathological Study on the Oral Mucosal Lesions in Common Dermatological Disorders

Dermatology Section

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ABSTRACT

Aims: To study the clinico-histopathological correlation of mucosal involvement in various dermatological disorders.

Background: The mucosa of the oral cavity is very important from the dermatologist's point of view as it originates from the ectoderm. The structure and the lining of the oral cavity has importance in the diagnosis of oral as well as systemic diseases, as it is the site of various isolated mucosal lesions as well as mucosal lesions of systemic diseases. The physical examination is completed by doing a histo-pathological examination in order to establish a final diagnosis.

Materials and Methods: 110 patients who had oral lesions, who were diagnosed clinically were included in the study. A 4-5 mm punch biopsy specimen of the oral lesion was taken under local anaesthesia and sent for histo-pathology.

Results: Of the 110 cases, Lichen planus and Pemphigus vulgaris formed a majority of the cases and the lips and the buccal mucosa were the most common sites which were reported.

Conclusion: From the ongoing discussion and observations, it can be concluded that for any disease which presents with oral manifestations or for diseases in which oral manifestations precede the systemic onset, especially of longer duration, the histo-pathology of the oral lesions should always be performed as it is an essential diagnostic tool.

Key Words: Pathology, Mouth, Skin

INTRODUCTION

The oral mucous membrane is in direct continuity with the skin and it shares many of its functions; the specialized nature of the oral environment carries with it a distinct set of constraints for which adaptations are necessary. Because of this unique environment in the oral cavity, the disorders which affect the oral mucosa should be expected to be different from those of the skin, with respect to their incidence, clinico-pathologic manifestations, and the extent to which these factors are modified by the oral milieu. Most of the oral diseases which the clinicians encounter are readily understood and recognized when the observer begins with an appreciation of the basics of the oral structure and function. The oral cavity is the site of various mucosal lesions. Oral lesions are usually the result of local diseases, but they may be the early signs of systemic diseases which include dermatological disorders and in some instances, may cause the main symptoms [1]. The physical examination is completed by doing a histopathological examination in order to establish a final diagnosis [2].

The mucosa of oral cavity is very important from the dermatologist's point of view as it originates from the ectoderm [3]. The structure and the lining of the oral cavity can assume importance in the diagnosis of oral as well as systemic diseases. The oral cavity should be examined in a systematic manner, starting with the lips, followed by the gingivobuccal sulcus, the buccal mucosa, gingiva, teeth, palates, tongue and the oropharynx. Histologically, the oral mucosa consists of stratified squamous epithelium, connective tissue stroma which is known as lamina propria and submucosa in all the areas, except for the gingiva and the hard palate [4]. In the non-keratinized regions such as the buccal (cheek) and the floor-of-mouth mucosae, overt keratinization and granular cells are absent and the surface cells are flattened, with elongated nuclei [5]. The stratified squamous epithelium is non-keratinized. The submucosa is a loose connective tissue layer which helps in the attachment of various structures. The blood vessels, accompanied by the lymphatics,course through the submucosa. The oral mucosa contains the same population of dendritic cells as the skin: melanocytes, Langerhans cells and Merkel's cells. The diseases of the oral mucosa may be a part of the general systemic disease or a component of cutaneous disease or they may be limited to the oral cavity itself. The interpretation of the symptoms and signs poses a difficulty because of the anatomical and functional peculiarities of the oral mucosa. The papular lesions are covered by stratified squamous epithelium and they appear to be moist. The vesicular lesions always rupture readily to leave a raw, eroded surface. The ulcers are easily infected and are consequently foul smelling. A biopsy of the suspicious areas of the oral cavity often requires the cooperative effort of the dermatologist and the pathologists [6].

To the best of our knowledge, not many reports of such studies have been reported, especially from this part of the country. Therefore, we undertook this open, randomized case control study to evaluate the clinico-histopathological correlation in the mucosal involvement in various dermatological disorders.

MATERIALS AND METHODS

110 patients were selected from the skin clinic in the Malwa region of Punjab from 2008 to 2010 to study the clinico-histopathological correlation of various causes of oral lesions. The patient's diagnoses were made on the basis of the clinical findings. A detailed history and relevant investigations were recorded in the proforma. All the patients were informed about the mucosal biopsy and their

consent was recorded. Before the procedure was undertaken, the characteristics of the lesion (number, size, shape, colour, texture, consistency, the time of evolution, associated signs and symptoms and regional nodes) were described in the patient's clinical records, together with a presumed diagnosis and a possible differential diagnosis. After the surgical preparation of the lesion from where the biopsy was taken, an amide-type local anaesthetic with a vasoconstrictor (2% Xylocaine with adrenaline) was given. A 4-5 mm punch biopsy was then taken. The specimen was introduced in the fixing solution i.e. 10% formalin solution and this sample was sent for histo-pathology. Firm pressure for haemostasis was given and the incised area, if needed, was closed with non-absorbable sutures to facilitate healing. The sutures were removed after 6-8 days. Although no dressing was applied following the biopsy, the post-operative care consisted of antibiotics and anti-inflammatory agents which were given for 7-10 days. The clinical diagnosis was correlated with the pathological findings and any dissociation between the two was recorded.

RESULTS

The male to female ratio was 1:1.2, and a peak incidence was observed in the age group of 31-50 years. Out of these 110 cases; 47(42.73%) were diagnosed clinically as Lichen planus; 32(29.09%) were Pemphigus vulgaris; 12(10.91%) were discoid lupus erythematosus (DLE); 17(15.45%) were recurrent aphthous ulcer and 2(1.81%) were leukoplakia, as shown in [Table/Fig-1]. The duration of the diseases ranged between 15 days to 10 years, with a maximum number of cases (58.18%) having less than 6 months duration, as shown in [Table/Fig-2]. 39.09% cases had reticular type of lesions and 31.82% had ulcerative lesions, as shown in [Table/Fig-3]. Multiple sites were involved in 56% of the patients and the buccal mucosa and the lips were affected most commonly. In 42% of the cases, skin involvement was there. The histopathological features are as shown in [Table/Fig-4]. In 102(92.73%) cases, a clinico-histopathological correlation was present, as shown in [Table/Fig-5]. In the present study, the diseases which were encountered were Lichen planus- 47 (42.73%) cases; Pemphigus vulgaris -32 (29.09%) cases; recurrent aphthous ulcer -17 (15.45%) cases; DLE- 12 (10.91%) cases; and leukoplakia - 2 (1.81%) cases. Skin involvement was present in 42% cases. It was observed that the most frequent oral conditions in the dermatological clinic were Pemphigus vulgaris (18.3%), Lichen planus (8.3%), candidiasis (8.3%), recurrent aphthous ulcers (6.7%), herpetic lesions (6.7%), xerostomia (6.7%), and traumatic lesions (6.7%). Oral affection in the muco-cutaneous conditions was observed in 21 (35%) patients; the diagnosis was based on oral signs in 10 (48%) of these patients (15).

DISCUSSION

The structure and the lining of the oral cavity have importance in the diagnosis of oral as well as systemic diseases. The oral lesions in general, are very common. Some are ominous while most are not; the clinician therefore, is continually faced with diagnostic challenges. The correct diagnosis of oral lesions requires attention to the history, physical findings, laboratory examinations, and histo-pathological examinations in almost equal measure.

The non-malignant, ulcerous diseases of the oral cavity often require repeated histological and clinical observations to establish a diagnosis [2]. It was observed that punch biopsy of the oral cavity was a safe and useful technique that could be easily employed by dermatologists [7]. The accurate diagnosis of chronic oral

Disease	No. of cases	%age
Lichen Planus	47	42.73
Pemphigus Vulgaris	32	29.09
Recurrent Aphthous Ulcer	17	15.45
Discoid Lupus Erythematosus	12	10.91
Leukoplakia	2	1.81

[Table/Fig-1]: Number of Cases of Disease

Disease ▸ / Duration ▾	Lichen planus	P. vulgaris	Discoid LE	R.A. Ulcers	Leukoplakia
< 1 month	5	2	0	6	0
1-6 months	24	19	2	8	0
7-12 months	12	8	5	1	0
> 1year	6	3	5	2	2

[Table/Fig-2]: Duration of Diseases

Disease ▸ / Type of lesion ▾	Lichen planus	P. vulgaris	Discoid LEE	R.A. Ulcers	Leukoplakia	Total
Reticular	43	0	0	0	0	43
Ulcerative	1	32	2	0	0	35
Atrophic	1	0	10	0	0	11
Erythematous Ulcer	0	0	0	17	0	17
White patch	0	0	0	0	2	2
Erosive	2	0	0	0	0	2

[Table/Fig-3]: Type of Lesions

Diseases ▸ / Histological findings ▾	L. Planus	P.Vulgaris	Dle	R.A.Ulcer	Leukoplakia
Epidermis					
Hyperkeratosis	45	0	11	0	2
Parakeratosis	32	0	10	0	0
Thinning of granular layer	0	0	0	0	0
Acanthosis	40	0	0	0	2
Hypergranulosis	34	0	0	0	2
Acantholysis	0	32	0	0	0
Cleft formation	0	32	0	0	0
Spongiosis	8	0	0	17	0
Elongation of rete ridges	37	0	0	0	0
Ballooning degeneration	0	0	0	0	0
Basal cell degeneration	45	0	12	0	0
Follicular plugging	0	0	12	0	0
Atrophy	0	0	12	0	0
Colloid bodies	36	0	3	0	0
Dermal					
Colloid bodies	5	0	3	0	0
Oedema	17	7	0	0	0
Lymphocytic infiltrations	40	9	10	17	2
Polymorphonuclear	35	26	0	12	0
Perivascular	0	0	8	0	0
Plasma cells	24	0	7	8	0
Granuloma	0	0	0	0	0

[Table/Fig-4]: Histopathological Features

	Clinical Diagnosis	Confirmed on Histopathology		Discordance	
Lichen Planus	47	43	91.48%	4	8.52%
Pemphigus Vulgaris	32	30	93.75%	2	6.25%
Discoid Lupus Erythematosus	12	12	100%	0	0%
Recurrent Aphthous Ulcer	17	15	88.23%	2	11.77%
Leukoplakia	2	2	100%	0	0%

[Table/Fig-5]: Clinical & Histopathological Correaltion

ulcers requires a peri-lesional biopsy [8]. The biopsy is required to establish the diagnosis and the histo-pathological examination must be coordinated with the clinical findings [9]. The histological examination confirms the diagnosis and it helps to formulate a prognosis and to allow the commencement of the treatment [10].

As observed in the present study, the male to female ratio was 1:1.5 and the age varied from a minimum of 13 years to a maximum of 72 years, with a peak incidence between the ages of 31 and 50 years. The mean age group which was affected in males was 38.95 years and in females, the mean age group which was affected was 41.03 years. In oral lichen planus, women out-numbered men by more than two to one. The mean age group at which the lesion was discovered was the sixth decade of life [11]. Pemphigus vulgaris was more frequent among women (9:3), and there was a tendency for the severity and frequency of the disease to decrease with time [12]. The ages of the patients ranged from 27 to 79 years; the mean age was 56.5 years [13]. In oral lupus erythematosus, women out-numbered men, with a mean age of 46 years [14].

As observed in the present study, the most frequent location of the oral lesions was buccal mucosa, followed by the lip. The most frequent type of lesion was reticular, followed by an ulcerative pattern. Oral lichen planus was found mainly in women and most commonly on the buccal mucosa [16]. The most common pattern which was found was reticular or papular, which was predominantly located on the buccal mucosa, the gingiva, and the borders of the tongue [17].

In 92.73% cases, the clinical diagnosis was confirmed by histo-pathological examination. The histopathological analysis showed that two cases which were clinically diagnosed as oral lichen planus were in fact, benign keratosis. In these cases, the lesion appeared to be hyperpigmented and unilaterally located and it had a reticular pattern, and therefore it was diagnosed as OLP. This finding led to the conclusion that abiopsy should always be done. In one case with a clinical diagnosis of Pemphigus vulgaris, the histopathological diagnosis revealed ulcerative stomatitis. In this case, the surface erosion existed, with the destruction of the epithelium. In one case with a clinical diagnosis of recurrent aphthous ulcer, the histopathological diagnosis was ulcerative stomatitis. In this case, the lesion presented an erythematous surface with a white lesion, from which a part of the biopsy was taken. In the present study, the correlation between the clinical and the histological diagnoses was missing in 4 cases. This finding suggests that in the diagnosis of oral lesions, we cannot rely on a clinical or histological diagnosis alone. Also, we think that the clinical diagnosis was not confirmed in these cases because the biopsy specimens were inadequate, exhibiting only an ulcerated surface. The biopsy of lesioned tissues can be challenging. Biopsy specimens of predominantly erythematous and ulcerated mucosal lesions should be taken a few millimeters away from the ulcers, so that the specimen's epithelium and connective tissue remain intact [18]. It has been suggested that punch biopsies provide greater interobserver reliability than wedge biopsies in the histopathological diagnosis [19].

The difference in the clinical and histopathologic diagnoses might be partly caused by the fact that the clinical information did not accompany the biopsy specimen and that the pathologist was not aware of the clinical presentation and the exact location of the lesion. In 213 cases of oral lichen planus which were correlated clinico-pathologically, in spite of considerable variabilities in both the aspects; it was observed that there was a clinical and histopathological agreement in 96% cases [20]. In 51 cases of subepidermal bullous disease which were correlated clinico-pathologically, it was observed that there was a good clinico-pathologic correlation, with 46 out of 51 cases showing concordant clinical and histological diagnoses [21]. In the clinico-pathological discordance for lesions of the oral mucosa, it was observed that the statistical analysis demonstrated 17 cases of agreement (81%) and 4 cases of discordance (19%) between the clinical diagnosis and the pathological diagnosis [22]. It is of interest that the early phase of these lesions usually exhibits an interface lymphocytic infiltrate that may mimic an oral lichenoid stomatitis such as Lichen planus. It is therefore important to follow-up any patient with oral leukoplakia and those who were diagnosed with non-specific lichenoid stomatitis closely [23].

CONCLUSION

The discrepancy between the clinical and histo-pathological diagnoses in 7.27% of the cases suggests that all cases of oral mucosal lesions should be submitted for a histopathological analysis. However, histo-pathology is also mandatory for predicting the prognosis in these patients.

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