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Oro and maxillofacial Manifestation Analysis in Patients of SJS/TEN: A Prospective Study: Original Study

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ABSTRACT:
Aim: Stevens-Johnson syndrome (SJS) and TEN both mucocutaneous diseases are caused by some drug reactions. Their clinical appearance differs based on the extent of the lesion involving the skin surface area. The aim of this study is to assess the various drugs and other triggering factors with an evaluation of sites involved in oral and maxillofacial region in patients of SJS/ TEN.
Methods: We enrolled 30 patients who were diagnosed with SJS/ TEN, which were assessed in terms of changes involving the oral and maxillofacial region and the correlation of different predisposing triggering factors.
Results: In both diseases, the most common prodromal symptoms were itching, fever, and malaise. The mucosal membrane of the oral cavity and eyes were seen to be affected. The most common causative agents in both diseases were antibiotics, allopurinol, anticonvulsants, NSAIDs and others including the patients were positive for HIV /tuberculosis.
Conclusions: Anticonvulsants were reported to be the second most common factor, after antibiotics, in the development of oral and maxillofacial alterations in patients with SJS and TEN, and this could be explained by the increase in anticonvulsants usage these days in our country. While some percentage of drugs like NSAIDS, allopurinol, and some ayurvedic medicines were found to be present in causing lesions in the maxillofacial region.
Key Words: Drug hypersensitivity; Toxic epidermolysis necrosis; Stevens-Johnson syndrome

Introduction:

Stevens-Johnson syndrome and toxic epidermal necrolysis are uncommon, possibly fatal skin conditions marked by the loss of skin and mucous membranes as well as systemic signs. Medication is the most common factor in these occurrences. Lyell syndrome, Stevens-Johnson syndrome (SJS), and toxic epidermal necrolysis (TEN) are all variations of the same illness. A sign of Stevens-Johnson syndrome or toxic epidermal necrolysis is the size of the detached skin surface area. Stevens-Johnson syndrome occurs on less than 10% body surface area . 10% to 30% of the body's surface area is affected by the Stevens-Johnson syndrome/toxic epidermal necrolysis overlap. More than 30% of the body's surface area is affected by toxic epidermal necrolysis. Hence both the conditions involve the mucosal surfaces is indicative of keratinocyte necrosis.

Objectives:

The aim of the study was to:

- Investigate diverse orofacial manifestations in Steven Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) patients.
- Analyze clinical characteristics and pathophysiologies variations.
- Identify spectrum of oro and maxillofacial manifestations in SJS/TEN patients.

Materials and methods

An examination of all patients who had a diagnosis of SJS/TEN from FEBRUARY 2022 to JULY 2022 was recorded. The diagnosis SJS was based on the presence of a relationship between drug intake and the time to cutaneous adverse reactions. Moreover, SJS/TEN diagnosis was based on severe skin lesions (mucous membrane erosions, target lesions and epidermal necrosis with skin detachment) based on the detached skin surface whether less than 10% of the total body surface, regardless of the laboratory findings. The diagnosis was confirmed by calculating the score records for both the variants plus histopathological analysis of focal tissue (vacuolization of basal layer keratinocytes associated with lymphocytes).

Results: In this study, the maximum number of patients were male (56.6%), and with a mean ageof 36.7 years. Where in 26% cases were having hemorrhagic crustation on lips, and also there were lesions in 15% of cases of the labial mucosa, in 13% of cases of buccal mucosa, in 15% of cases of the palate, and 26% of cases were showing extraoral lesions. Regarding the prodromal symptoms 26% were having history of fever, 33% had weight loss, symptoms of dysphagia and fatigue in 20% and 21% respectively. In relation to the triggering factors association, maximum patients about 46% had medical history of taking anticonvulsants, 42 % cases with antibiotics while in rest cases history of NSAIDS, drugs like allopurinol, and some ayurvedic medicines were found to be present.

Results

TABLE 1: AGE AND GENDER DISTRIBUTION

Serial no.	Age	Gender
1	11	M
2	18	M
3	20	M
4	22	F
5	23	M
6	23	M

7	25	M
8	25	M
9	28	F
10	29	F
11	32	M
12	32	M
13	32	M
14	35	F
15	36	F
16	37	F
17	38	M
18	40	M
19	40	M
20	40	M
21	40	F
22	41	F
23	44	M
24	45	M
25	50	F
26	54	F
27	60	F
28	61	F
29	65	M
30	69	F
	Mean age 37.16 years	M:F =17:13

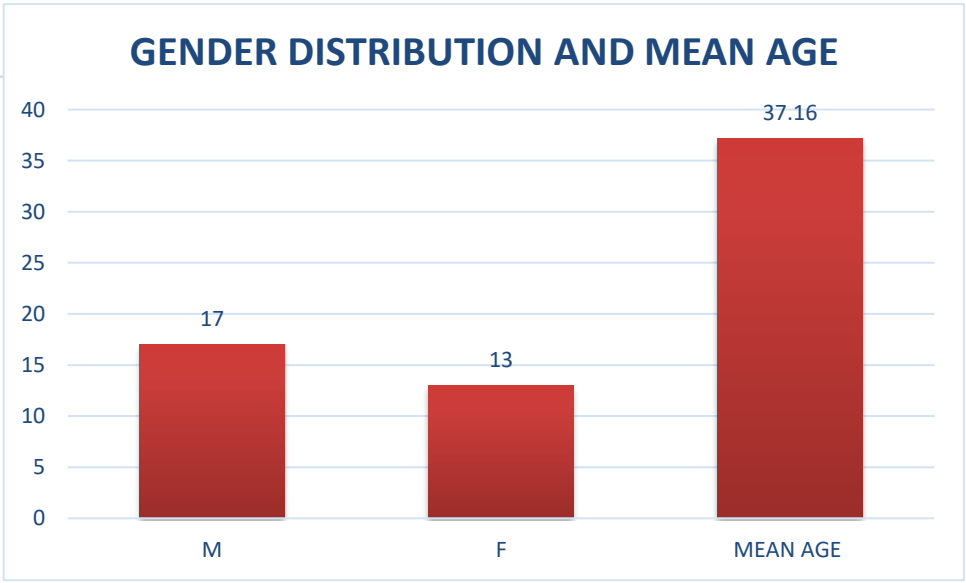


TABLE 2: SITE OF LESION DISTRIBUTION

REGION	PRESENT (1)	ABSENT (0)
HEMORRHAGIC CRUSTS ON LIP VERMILION	29	01
LABIAL MUCOSA	22	08
BUCCAL MUCOSA	15	15
PALATE	17	13
EXTRA ORAL LESIONS	30	01

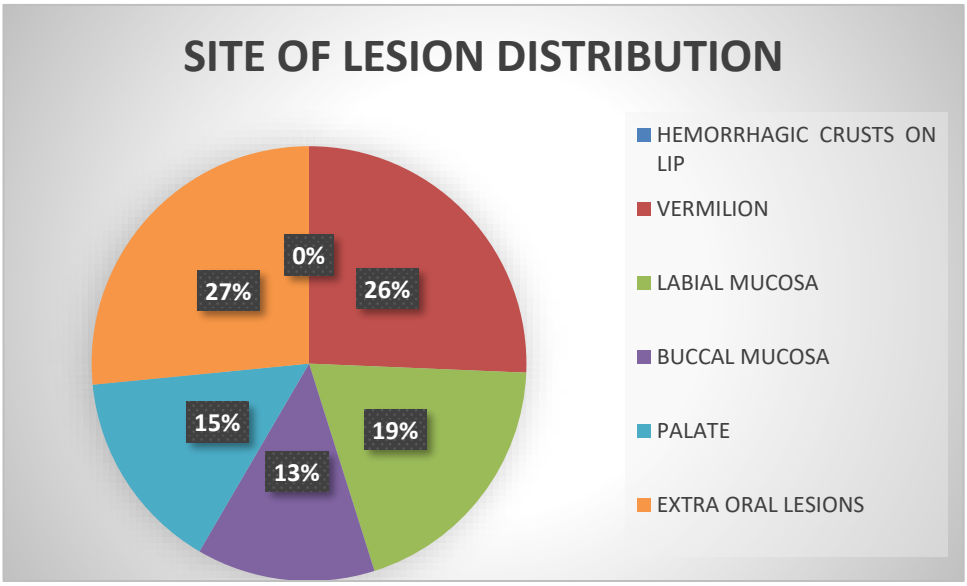


TABLE 3: TRIGGERING FACTORS ASSOCIATION

ANTIBIOTICS	ALLOPURINOL	ANTICONVULSANTS	NSAIDS	OTHERS HIV/ TUBERCULOSIS
11	02	12	04	01

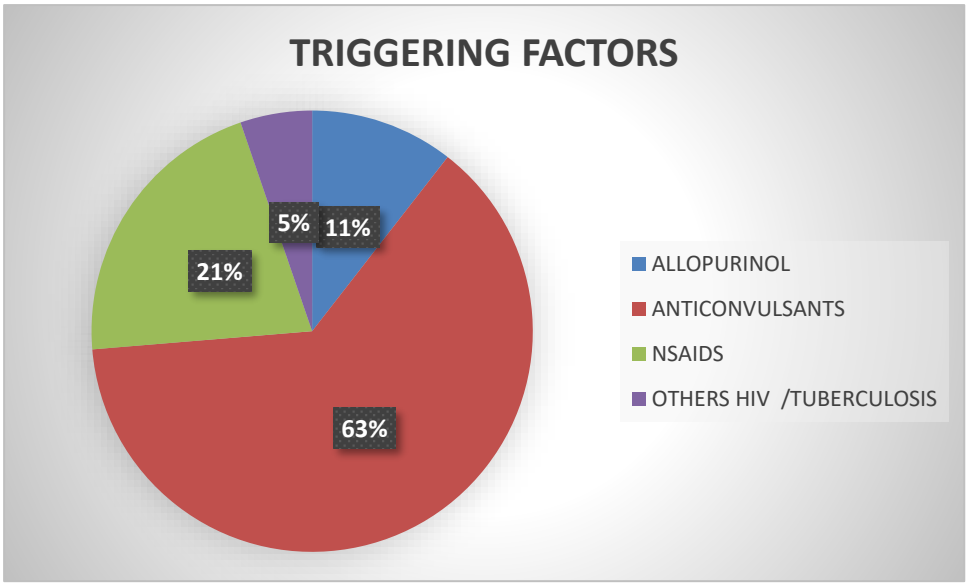
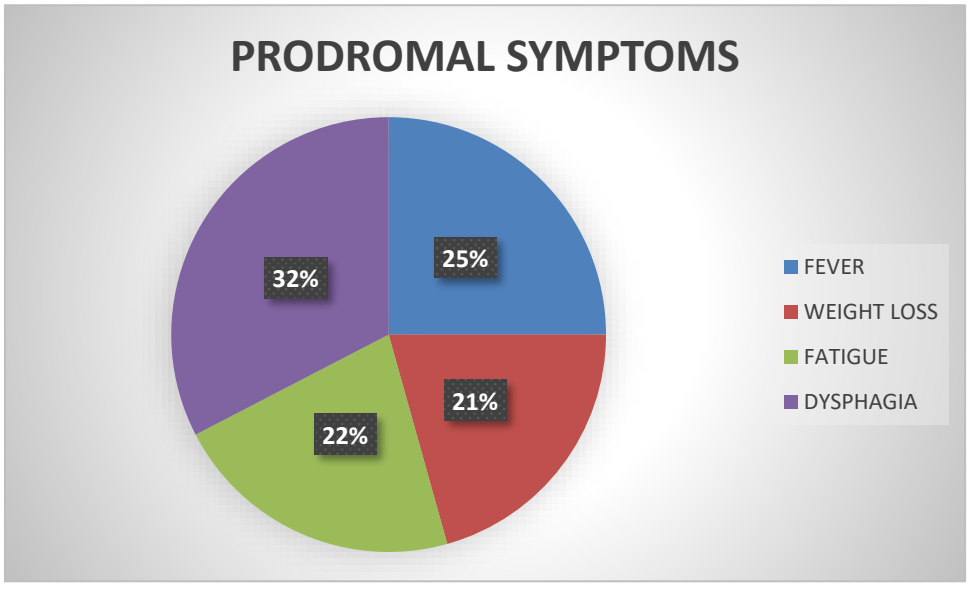


TABLE 4: PRODROMAL SYMPTOMS

PRODROMAL SYMPTOMS	PRESENT (1)	ABSENT (0)
FEVER	23	07
WEIGHT LOSS	**19**	11
FATIGUE	**20**	10
DYSPHAGIA	**30**	00



Clinical Presentation -

Fig. 1 showing lip inflammation and peeling along with ulcers on the palate and tongue surface.

Fig. 2 Encrustations and erosion present on labial mucosa with presence of peeling of skin

Discussion

This study discussed the different causes and clinical manifestations with emphasis on the oral manifestations of patients having SJS or TEN. The occurrence of SJS and TEN is related to many causes like infections, history of malignancy and some drugs severe reactions and among them drug reactions has been found to be the most common causative agent for precipitating manifestations in the mucocutaneous regions.

In our study the majority of patients with TEN and SJS were falling into the young to middle aged, with mean age was 37.16 years population with male predilection (Table 1).

The clinical characteristics of SJS typically arises after the occurrence of typical and atypical target lesions in the form of diffuse erythematous maculesith purpuric, necrotic centers, and overlying blistering. Positive Nikolsky sign, can also be appreciated in these patients. Among the oral findings typically the hemorrhagic crustations of lips and erosions in the labial and buccal mucosa. In extraoral findings cutaneous involvement of conjunctiva, nasal cavity, urethra, vagina, gastrointestinal tract and respiratory tract during the progression of disease is manifested.[5,6] In our study maximum number of patients showed involvement of oral mucosa followed by other cutaneous sites (fig.1,2), the reason for increased oral

mucosal involvement may be decreased saliva production and fibrinous exudative inflammation which leads to re-epithelization and healing.[7] In our study, the site where majority of the lesions occurred was the vermillion border of lip as hemorrhagic crustations (26%) , followed by the labial mucosa (19%), the palate(15%) and the buccal mucosa (13%) (chart 2). In a study conducted by Tod et al, TEN/SJS patients showed increased incidence in HIV is well known. Inour study only one of the patients was having history of being HIV positive which may be due to less sample size. Thus, also comprehensive history and investigation data on the various precipitating therapeutic agents may therefore also imparts importance in determining the cause.

The most commonly implicated drugs are anti-convulsant, sulfa derivatives, NSAIDs, penicillin, cephalosporins and allopurinol (Table3). [1,2] In our study maximum cases were more associated with the use of anticonvulsants (46%), followed by antibiotics (42%), and NSAIDS (4%), Allopurinol (4%), ayurvedic drugs (4%) . Various conducted studies have shown that, the most common causative drug reactions were associated with carbamazepine, lamotrigine, and levetiracetam [3,4] In our study among the anticonvulsants carbamazepine was greatly associated with a severe oral lesion which may be due to the presence of an aromatic ring in the composition, that cause the hypersensitivity reaction (Table 3).[4]

Abruptly, the mucocutaneous lesions develop after a prodrome of 1-14 days may be noticed , during which various symptoms are seen namely - fever, sore throat , productive cough , chills , headache, malaise ,arthralgia ,and vomiting and diarrhea (rarely seen)[8]. A history of fever or localized worsening suggests superimposed infection . In our study various prodromal symptoms were reported by the patients

. 26% patients gave history of fever, 33% patients had weight loss, 21% reported fatigue and 20% showed symptoms of dysphagia (Chart 4).

Recurrences may occur if the responsible agent is not eliminated or if the patient is re-exposed. Thus, this study provided the insightful information about somatic presentations of the oral and maxillofacial features of SJS/TEN in Punjab population and gives us an overview on how to enhance the practice in early diagnosis and management practice.

Generally, the management of Steven Johnson syndrome patients, is provided in intensive care units or burn centers. Most patients are given symptomatic treatment only as no specific treatment of SJS has been notes. Oral lesions are managed with the use of topical anesthetics and mouthwashes. These aid in reducing the pain and help increase patient's oral intake of fluids. Skin lesions should be treated as burns. Burrow solution or saline should be used compress the areas of denuded skin. The patient should be referred for medical care immediately afterdiagnosis. [9]

Conclusion

This study determines that these patients of Stevens-Johnson syndrome can sometimes present tothe oral diagnostician for the manifestations in oral regions in the form of gingival bleeding andhemorrhagic crustations involving oral mucosa. Thus their early diagnosis can be made by comprehensive history taking and thorough examination. A multidisciplinary approach involving dental perspective in the treatment of Steven Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) can be highly beneficial:

1. **Prevention and Early Detection**:
    - Educate patients on oral symptoms and monitor those on triggering medications.
    - Conduct routine dental exams for early detection and referral.
2. **Oral Care and Comfort**:
    - Advise gentle oral hygiene and recommend suitable products.

- Provide oral moisturizers and topical anesthetics for comfort.

3. **Nutritional Support**:
    - Collaborate with nutritionists to ensure adequate nutrition without aggravating oral lesions.
4. **Pain Management**:
    - Recommend analgesics and topical agents for oral pain relief.
5. **Wound Care**:
    - Offer guidance on oral wound care to prevent infections.
6. **Prosthodontic Considerations**:
    - Plan prosthetic solutions for extensive mucosal involvement or tooth loss.
7. **Collaboration and Communication**:
    - Ensure effective communication and collaboration among the multidisciplinary team for comprehensive patient care.

This approach aims to improve patient outcomes and enhance the quality of care for SJS and TEN.

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