Topics:

Systemic sclerosis

Sjogren syndrome

Definition

Clinical feature

Oral and Dental problems

Systemic sclerosis:

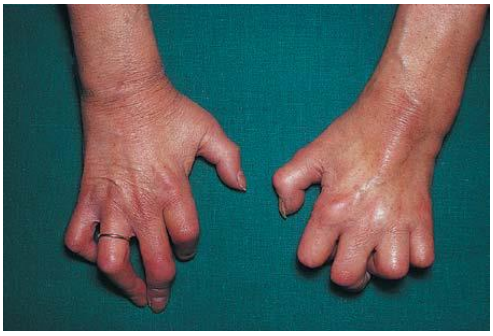
Definition: Systemic sclerosis (SScl) is an autoimmune disorder of connective tissue, which results in fibrosis affecting the skin, internal organs and vasculature.

The peak age of onset is in the fourth and fifth decades with a 4: 1 female-to-male.

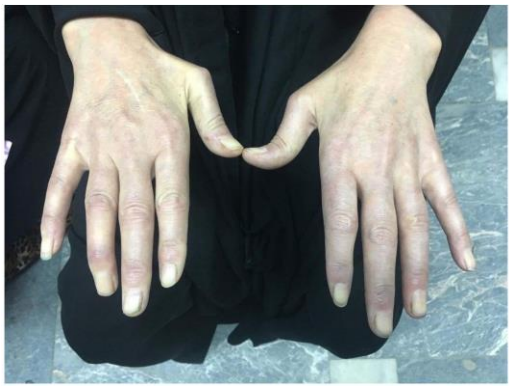
It is subdivided into diffuse cutaneous systemic sclerosis and limited cutaneous systemic sclerosis

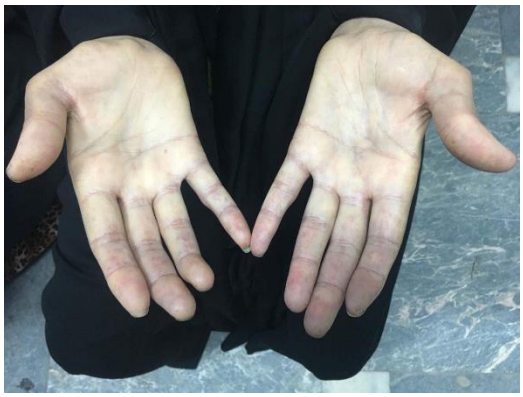
Clinical features

Skin: Initially, there is non-pitting oedema of fingers. Subsequently, the skin becomes shiny and thick. The face and neck are often involved, with thinning of the lips and radial furrowing. Skin involvement restricted to sites distal to the elbow or knee (apart from the face) is thus classified as lcSScl. Involvement proximal to the knee and elbow and on the trunk is classified as 'diffuse disease' (dcSScl).



Raynaud's phenomenon: This is a universal feature and can precede other features by many years.





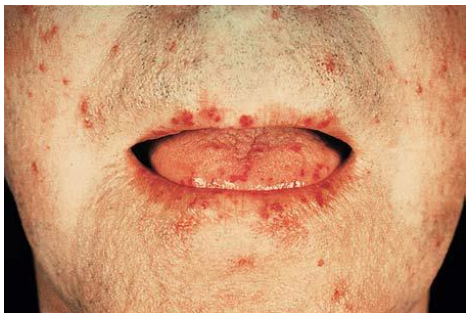
Musculoskeletal features: Arthralgia and flexor tenosynovitis are common. Restricted hand function is due to skin rather than joint disease.

Gastrointestinal involvement: Dysphagia, Recurrent occult upper gastrointestinal bleeding, Small intestine involvement may lead to malabsorption due to bacterial overgrowth.

Pulmonary involvement: Pulmonary hypertension and interstitial pulmonary disease.

Renal involvement: One of the main causes of death is hypertensive renal crisis, characterised by rapidly developing accelerated phase hypertension.

Oral and dental problem associated with systemic sclerosis:



*Microstomia (small mouth) and Tightness of the Mucosa (the lining of the mouth).

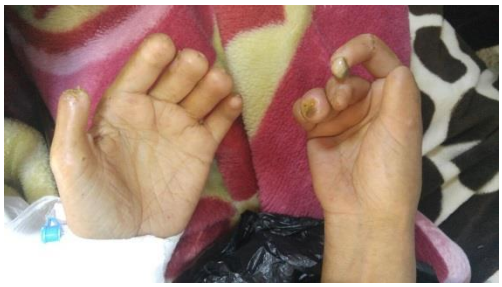
Treatments: Exercises and devices to improve the flexibility of the lips and jaw muscles.

*Xerostomia (dry mouth): difficulty in swallowing food, increased incidence of fungal infections, increased risk of tooth decay & gum disease.

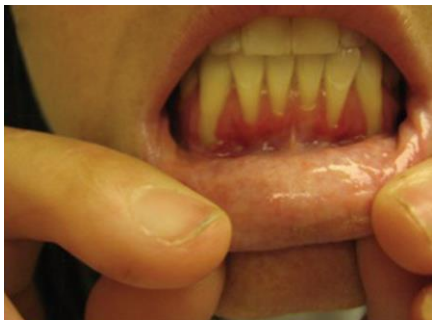
*Gastro-esophageal Reflux Disease (GERD or acid reflux): Dramatic increase in tooth decay and erosion.

*Myofacial (muscular) Pain and Temporomandibular (jaw joint) Pain: Pain which may be confused with toothache.

*Hand and joint function may decline over time mainly because of skin tightening, rather than arthropathy, which may have a negative impact on daily activities, including maintenance of adequate oral care.



*Reduced vascularity with resulting tissue ischemia may explain the increased susceptibility to periodontal disease, and thus the increased prevalence of loose or mobile teeth



*Furthermore, collagen changes of the oral mucous membranes result in the thin, pale and tight appearance and loss of vascular integrity. This also contributes to gingival recession and stripping of the attached gingiva

People with scleroderma and the accompanying Raynaud's should always specify "no epinephrine" because epinephrine can cause or worsen attacks of Raynaud's.

Sjogren's syndrome:

Primary Sjögren's syndrome (PSS) is characterised by lymphocytic infiltration of salivary and lacrimal glands, leading to glandular fibrosis and exocrine failure.

The typical age of onset is between 40 and 50, with a 9 : 1 female-to-male ratio. The disease may occur with other autoimmune diseases (secondary Sjögren's syndrome).

Clinical features

The eye symptoms, termed keratoconjunctivitis sicca, are due to a lack of lubricating tears, which reflects inflammatory infiltration of the lacrimal glands. Conjunctivitis and blepharitis are frequent.

Salivary gland enlargement

Non-erosive arthralgia

Raynaud's phenomenon

Interstitial lung disease

Anaemia, leucopenia

Thrombocytopenia

Peripheral neuropathy

Glomerulonephritis

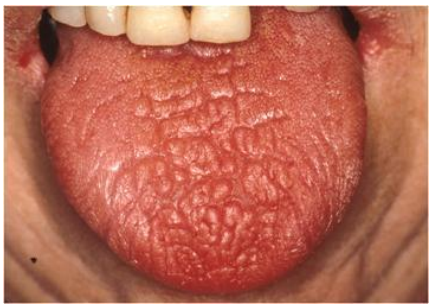
Interstitial nephritis

Oral and dental problems:

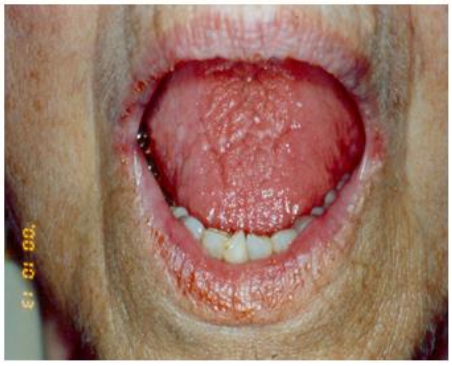
Oral manifestations are encountered with high frequency mainly due to the hypofunction of salivary glands resulting in decreased salivary secretion. Loss of the lubricating, buffering and antimicrobial properties of saliva lends to an amplified incidence of the following conditons:

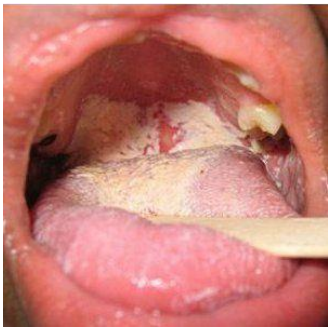
- Dental erosion
- Dental caries: Specifically, root and incisal caries, which are seldom seen amongst the general population, are of greater concern for those with

Sjögren's syndrome. Sjögren's syndrome sufferers have been reported to have higher numbers of cariogenic and acidophilic micro-organisms in comparison with those found in age matched control individuals.



- Mucosal friability
- Dry cracked or peeling lips
- Difficulty wearing dentures
- Angular cheilitis
- Dry plaque laden coarse tongue
- Erythematous tongue
- Mucositis
- Ulcer
- Oral candidiasis
- Halitosis
- Chronic xerostomia impairs taste, chewing, swallowing, speaking and sleeping.





Prevention and treatment:

1- Carious lesions: → proactive prevention and remineralization

→ Mechanical tooth bushing 2 to 3 times daily with a prescription fluoride gel containing 1.1% sodium fluoride, or remineralizing dentifrice.

→ Professional application of topical 5% sodium fluoride varnish, and daily home fluorides such as 1.1% sodium fluoride prescription dentifrices are preventive strategies which decrease microbe colonization and strengthen tooth enamel—thus making tooth surfaces more resistant to caries.

→ Dental examination at least every 3-4 month and bitewing radiography every 12 month.

2- Dry mouth: In mild cases → frequent sipping of water, along with dietary avoidance of certain foods and chemicals, such as alcohol, caffeine and sodium lauryl sulfate, commonly found in dental products, may alleviate xerostomia to an acceptable level.

→Sugar-free gum, mints and lozenges are advisable in those with residual capacity to encourage increased salivary production.

→ Complex saliva substitutes attempt to mimic the protective properties of saliva through the addition of remineralizing and antimicrobial agents.

The products generally fall into 2 categories: **salivary substitutes** (viscous products applied to the oral mucosa in the form of sprays, gels, oils, mouthwashes, mouth rinses, pastilles or viscous liquids) and **saliva stimulants** (such as lozenges, chewing gum and mints, which may or may not contain medication).

→ Supersaturated calcium phosphate rinse (NeutraSal), a prescription mouth rinse, is a relatively treatment option for patients experiencing Sjögren's syndrome-related xerostomia.

→ Two muscarinic acetylcholine receptor agonists (pilocarpine and cevimeline) are licensed for the treatment of sicca symptoms in Sjögren's syndrome. These systemic agents stimulate the muscarinic acetylcholine receptors M1 and M3 present on salivary glands, leading to increased secretory function.

→Products containing cariostatic sugar alcohol, a bacteriostatic agent, such as xylitol or sorbitol, are recommended during waking hours to reduce the sensation of xerostomia and facilitate speech and swallowing

3- Dysgeusia: →avoid alcohol and caffeine
→Drink water while eat
4- Dysphagia: →careful eating with fluid
→Copious use of fluid during meal
→Avoid dry hard and difficult to masticated food
5- Oral candidiasis: → extra-oral antifungal ointment: nystatin ointment 4 times daily to commissure
→Intra oral antifungal rinses or lozenges
→Denture antifungal treatment option (daily hygiene): soak prosthesis for 30min in benzoic acid or 0.12% chlorhexidine
6- Bacterial infection:→ systemic antibiotic.

Xerostomia Associated Problem	Treatment Strategy

Carious Lesions	Proactive Prevention & Remineralization Options:
	• Utilizing technology to detect early carious lesions:
	  • Transillumination, i.e., Dexis CariVu, DIFOTI
	  • Laser Fluorescence, i.e., DIAGNOdent
	  • Qualitative Light Fluorescence, i.e., VistaProof
	  • Light Emitting Diode (LED), i.e., Midwest Caries I.D.
	  • Spectroscopy, i.e., CarieScan Pro
	  • Photothermal radiometric modulated luminescence, i.e., Canary System
	  • Optical coherence tomography, i.e., OCT Dental Imaging System
	• Mechanical Toothbrush, i.e., Sonicare or Braun OralB
	• Interdental Options:
	  • Oral Irrigator, i.e., Waterpik
	  • Proxy brushes
	• Remineralizing Dentifrice, i.e., Proenamel
	• Home Fluoride:
	  • Daily use of fluoridated dentifrice (0.05% Sodium fluoride)
	  • Daily use of prescription fluoride gel (1.1% sodium fluoride, 0.4% stannous fluoride)
	• Rinses:
	  • Prescription Remineralizing: i.e., supersaturated calcium phosphate rinse (NeutraSal)
	  • Prescription Antibacterial: i.e., Chlorhexidine (CHX) 0.12% - rinse, swish and spit 10 ml twice daily
	• Professional application of 5% sodium fluoride varnish
	• Increased hydration
	• Salivary stimulation with sugar-free gum, mints, and lozenges
	• Dental examination at least every 3-4 months and bitewing radiographs every 12 months for early diagnosis

Dry Mouth	• Salivary stimulation with sugar-free gum, mints, and lozenges
	• Artificial salivary replacements::
	  • Oxygenated Glycerol Triester, i.e., Aquaoral spray
	  • Biotene rinse, spray and/or gum
	• Prescription sialogogues: pilocarpine (5 mg 3 times daily and at bedtime; cevimeline (30 mg 3 times daily)
	• Lubricants on lips every 2 hours
	• Avoidance of spicy foods
	• Bedside humidifier during sleeping hours

Dysgeusia	• Avoidance of alcohol, caffeine, and products containing sodium lauryl sulfate (SLS) • Drink fluids, especially water, while eating
Dysphagia	• Careful eating, with fluids • Copious use of fluids during meals • Avoidance of dry, hard, sticky and difficult to masticate foods

Oral Candidiasis	• Extraoral:
	  • Antifungal ointments: nystatin ointment applied 4 times daily to commissures
	• Intraoral:
	  • Antifungal rinses: nystatin oral suspension
	  • Antifungal lozenges dissolved in mouth 3-5 times daily, nystatin pastilles (200,000 units), clotrimazole troches (10 mg) for 10 days
	• Denture antifungal treatment options (daily hygiene) -soak prosthesis for 30 minutes in:
	  • benzoic acid
	  • 0.12% chlorhexidine (CHX)
	  • 1% sodium hypochlorite

Bacterial Infections	• Systemic antibiotic therapy for 7 to 10 days: amoxicillin with clavulanate (500 mg each 8 hours); clindamycin (300 mg 3 each 8 hours); cephalexin (500 mg each 6 hours) • Increased hydration • Salivary stimulation with sugar-free gum, mints, and lozenges