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Management of Necrotizing Ulcerative Gingivitis in A Pregnant Patient –A Rare Case Report

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Abstract: *Necrotizing ulcerative gingivitis is characterized by necrosis and sloughing of gingival tissues and presents with pain, spontaneous bleeding, necrosis of the interdental papillae and halitosis. Various predisposing factors responsible for NUG are psychological stress, immune deficiency, hormonal imbalance, malnutrition, poor oral hygiene, smoking etc. The disease if not treated on further progression can lead to necrotizing ulcerative periodontitis and noma. This rare case report is first of its kind, describes the diagnosis and management of a pregnant patient in her third trimester (eighth month) who presented with the complaint of severe pain in gums with the characteristic signs and symptoms suggestive of NUG. Patient was treated in a sequential manner which included debridement, dental prophylaxis along with antibiotic and antimicrobial regimen.*

NUG causes severe agony to an otherwise normal patient, however in a pregnant patient the signs and symptoms are even more severe and the management poses a challenge to the clinician. In this case a successful management of NUG in a pregnant patient is reported.

Keywords*: Necrotizing Ulcerative Gingivitis, Hormonal imbalance, Stress, Management*

I. Introduction

Necrotizing ulcerative gingivitis is an endogenous, polymicrobial infection of gingiva which begins as an ulceration of the tip of interdental papilla, spreads along the gingival margins, and if left untreated rapidly progresses to cause severe destruction of the periodontium. The disease entity, till date has been known with various names such as vincent's infection, trench mouth, fusospirochetal gingivitis, phagedenic gingivitis. It frequently occurs in an epidemic pattern, especially those living under similar conditions. A fusospirochetal bacterial component has been identified as principle organism however, according to various antimicrobial studies fusospirochetal complex could only be opportunistic pathogens present in the plaque which initiates the disease during the periods when host defenses are compromised by stress, malnutrition, hormonal imbalance etc. [3]

II. Case Report

A 22 year old female patient reported with the chief complaint of severe pain in gums with difficulty in chewing since 4-5 days. Patient gave history of fever and swelling prior to oral symptoms. Patient was in the 3rd trimester(8th month)of pregnancy. Patient has discontinued brushing since last 3 days. On extraoral examination facial asymmetry was noted due to swelling on left submandibular region, suggestive of submandibular lymphadenopathy.(fig1) On intraoral examination poor oral hygiene with halitosis and spontaneous gingival bleeding was seen.(fig 2) The marginal gingival was erythematous and swollen, there was generalized blunting with necrosis at the crest of interdental papilla. Pseudomembranous slough was noted on interdental and marginal gingival extending on to attached gingiva and palatal mucosa. Some areas were devoid of pseudomembrane exposing the gingival margin which was red, shiny and hemorrhagic.(fig 3,4,5) The lesions were sensitive to touch and there was presence of excessive amount of thick pasty saliva. On the first visit treatment was confined to the acutely involved areas. Each quadrant was isolated with cotton rolls. A topical anaesthetic spray was applied, and after 2 minutes, areas were gently swabbed with a cotton pellet moistened with 3% hydrogen peroxide to remove the pseudomembrane and soft debris.

Bleeding was present in few areas which subsided in sometime. Then the areas were irrigated with 3% hydrogen peroxide in 1:1 dilution for 1 minute. Patient was advised to rinse with equal mixture of 3% hydrogen peroxide and warm water thrice daily and with 0.12% chlorhexidine mouthwash twice daily. Patient was

advised to take adequate rest and nutrition. Patient was prescribed amoxicillin 500mg every 8 hours, and paracetamol 500mg every 12 hour, and as the patient was pregnant a written consent was asked from the patients gynecologist for initiating dental prophylaxis and metronidazole regimen.On the second day pesudomembranous formation was markedly reduced, irrigation and supragingival scaling was done, and patient was advised to continue the same regimen as given on first day. In addition to that tablet metronidazole 400mg was started only after the patient was counselled about due risk and consultation obtained from the gynecologist for the same. On the third day pain got reduced and clinical appearance of gingiva was significantly improved, irrigation and scaling was done.(fig 6,7)

On fifth day, there was complete absence of pseudomembarane, and pinkish hue of gingiva was returned.(fig 8,9) Significant resolution of submandibular lymphadenopathy was seen. Subgingival scaling was started, amoxicillin and metronidazole and hydrogen peroxide mouthwash were discontinued, and topical application of metronidazole gel was started and chlorhexidine mouthwash was continued. On tenth day gingiva appeared healthy with its pale pink hue, and palatal lesion showed complete healing. Patient was advised to maintain proper oral hygiene and nutrition.(fig 10-14)

III. Discussion

NUG is described as " Polymicrobial disease of the gingiva occurring in individuals with impaired host response, it is characterized by the necrosis and sloughing of gingiva and presents with characteristic signs and symptoms".The term 'acute' is outdated as there is no chronic form of the disease. NUG may have occurred as early as 401BC, Hunter in 1778 made the first clinical differential diagnosis between NUG , periodontoclasia and scurvy. Hirsch in 1886, for the first time gave the diagnostic features of NUG. Gilmer pointed out in 1906 that interdental papillae are ineviatably affected. Plaut in 1894 and Vincent two years later were the first to associate the fusospirochetal infection with NUG.[6]

The disease has quite a sudden onset. [6] The characteristic clinical features are punched out crater like depressions on gingiva, the craters are covered by pseudomembranous slough, and in some areas which are denuded of slough, red shiny heamorrhagic gingiva is seen. The patient characteristically complains of gnawing pain , metallic foul taste and pasty saliva. There is fever , malaise and enlarged submaxillary lymph nodes.[7]

Two most significant criteria in the diagnosis are: [8, 9]

- Interproximal necrosis and ulceration
- Soreness and bleeding

During pregnancy the levels of both estrogen and progesterone increases, which reaches at maximum at the eighth month of pregnancy i.e. levels 30 and 10 times the levels during the menstrual cycle respectively, as seen this case. These increased hormonal levels cause increased vascular permeability, leading to gingival edema and increased inflammatory response to dental plaque. As the patient was young and it was her first pregnancy stress also played a role. According to cohen et al stress causes activation of hypothalamic pituitary adrenal axis which leads to elevation of serum cortisol causing depression of lymphocytes and PMNs predisposes to NUG. Metronidazole is activ*e* against most obligate anaerobes, and a standard treatment for NUG. Although metronidazole has shown mutagenic activity in in-vitro studies, studies in mammals(in –vivo) have failed to demonstrate a potential for genetic damage, and fertility changes.[12] Also various studies performed in humans, did not reveal any elevated risk of congenital abnormalities, preterm delivery or low birth weight among women exposed to Metronidazole.[13 14]

IV. Conclusion

Every pregnant patient should be advised for a complete dental evaluation and adequate prophylactic measures from the initial stage of pregnancy so that acute exacerbation of periodontal diseases which are commonly seen in pregnant patient. Gynecologist can play a key role in counselling the patients regarding the significance of oral hygiene and encourage the patient for regular dental evaluation. A multidisciplinary approach is mandatory for maintaining a good oral health in pregnant patient.

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Figures

Fig 1: 20 year old female patient presenting with submandibular lymphadenopathy on left side of face. (day 1)

Fig 2: Erythematous inflammed gingiva with necrotic ulcerations and pseudomembrane. (day 1)

Fig 3: Ulcerations covered with pseudomembrane extending from palatal gingiva to palatal mucosa.

Fig 4 : Generalized blunting of the interdental papillae covered with pseudomembrane in left buccal view. (day 1)

Fig 5 : Generalized blunting of the interdental papillae covered with pseudomembrane in right buccal view. (day 1)

Fig 6 : Healing of necrotic ulcerations of gingiva (day 3)

Fig 7 : Disappearance of pseudomembranous slough on palatal mucosa. (day 3)

Fig 8 : Significant improvement in gingival appearance on frontal view. (day 5)

Fig 9 : Significant improvement in gingival appearance on palatal view. (day 5)

Fig 10 : complete resolution of all the lesions on frontal view. (day 10)

Fig 11 : complete resolution of all the lesions on right buccal view. (day 10)

Fig 12 : complete resolution of all the lesions on left buccal view. (day 10)

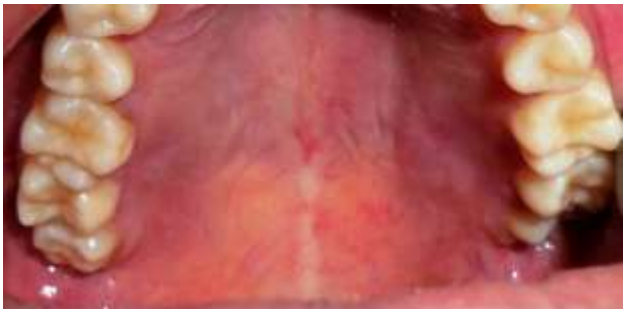

Fig 13 : complete resolution of all the lesions on palatal view. (day 10)