

Correlation between the menstrual cycle and the onset of recurrent aphthous stomatitis

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ABSTRACT

Background: The association between recurrent aphthous stomatitis (RAS) and the menstrual cycle is not clearly reported in the scientific literature. **Aim:** The aim of this study was to find the association between the onset of RAS and various phases of the menstrual cycle. **Materials and Methods:** Data regarding the onset of RAS were collected from 140 female participants during various phases of the menstrual cycle. **Results:** Out of 140 participants, 30 reported with the incidence of RAS during the 3 months of evaluation. Out of those 30 participants, 10 had incidence of ulcers during the third week after menstruation. **Conclusions:** Hormonal factors may play a role in the clinical manifestation of RAS.

Key words: Aphthous stomatitis, aphthous ulcer, menstrual cycle, oral ulcer

INTRODUCTION

Recurrent aphthous stomatitis (RAS) is defined as recurrent episodes of oral aphthous ulceration where the ulcers heal spontaneously with subsequent recurrence.^[1] RAS is one of the most common oral mucosal disorders affecting nonkeratinized mucosa, causing much pain and interference with mastication and speech. Based on the size and the number of ulcers, RAS is classified as minor, major, or herpetiform.^[2] Although the exact etiology of RAS is not clear, genetics, trauma, vitamin deficiency, microbes, and psychological stress are cited as predisposing factors. Conflicting reports exist regarding the association of hormonal changes in women and RAS.^[3] Hence, this study

was proposed with the objective to find the association between RAS and various phases of the menstrual cycle.

MATERIALS AND METHODS

A prospective study was carried out for a period of 3 months among the 140 undergraduate female dental students of our institution who had a positive history of RAS at least once during their lifetime. All the study participants belong to the age group of 19-23 years and all of them were hostel residents having similar diets. Students with abnormal menstrual history were excluded. The objective of this study was explained and each study participant was asked to report the date of onset of RAS along with the first day of their last menstrual period. The collected data were analyzed for any correlation

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Table 1: Distribution of incidence of aphthous ulcer during menstrual cycle

| Menstrual cycle | Number of incidences of RAS |
|-----------------|-----------------------------|
| First week | 6 |
| Second week | 8 |
| Third week | 10 |
| Last week | 6 |

between the onset of RAS and menstrual history using chi-square test.

RESULTS

Out of 140 participants, 30 reported with the incidence of one or more aphthous ulcers during the 3 months of evaluation. The distribution of incidence among various weeks of the menstrual cycle is shown in Table 1. The highest number of incidences of RAS (10 out of 30) was found during the third week of the menstrual cycle, which is statistically significant ($P < 0.001$, $n = 140$), when the chi-square test of independence was performed to examine the relation between the onset of RAS and various weeks of the menstrual cycle.

DISCUSSION

RAS is the most common oral ulcerative condition found in clinical practice.^[1] RAS is reported to be more common among females, among persons in the third decade of life, and among students.^[4,5] The lifetime prevalence of RAS in a similar population of 260 female dental students was found to be 53%.^[6] Similarly, the lifetime prevalence of RAS among the 341 dental students of Manipal College of Dental Sciences, Manipal, India was reported to be as high as 67%.^[7] The prevalence of RAS among the students should not be extrapolated for the prevalence of RAS in the general population because the predisposing factors, such as age, gender, stress, and nutritional status, may not be similar. In subjects with RAS, an enhanced immunologic response is assumed to occur due to some trigger factors, such as microbial antigens, stress, hormonal changes, and mechanical injury. The menstrual cycle is governed by hormonal changes, and on an average the duration is about 28 days. In 1992, it has been reported that there is no association between aphthous stomatitis and premenstrual period, pregnancy, or menopause.^[8] However, it has been reported that patients are free from aphthous ulcer during pregnancy and when they are taking oral contraceptive.^[9] In a minority of women, onset of cyclical ulceration was found during the

luteal phase of the menstrual cycle, which happens after ovulation (14 days).^[10] Our investigation also revealed that the onset of RAS is more common during the third week of the menstrual cycle, corresponding the luteal phase. Hence, large-scale epidemiological studies are required to evaluate this association. The limitations of this study include the lack of hormonal assay, low number of study participants, and short duration. In addition, the frequency, severity, and clinical presentation of RAS were not assessed in this study.

CONCLUSION

The onset of RAS was found to be more common in the third week after menstruation among the female dental students of our institution. Thus the role of hormones in the clinical manifestation of RAS deserves further investigation.

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Conflicts of interest

There are no conflicts of interest.

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