

ASSESSMENT OF SALIVARY PH IN PATIENTS WITH RECURRENT APHTHOUS ULCERATION (RAU): A CASE CONTROL STUDY

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ABSTRACT

An important role of saliva is maintaining the integrity of the oral tissues by controlling of oral pH. Saliva has a buffering capacity that neutralizes bacterial and cariogenic acids.

AIM: The aim of this study is to determine salivary pH in patients with recurrent aphthous ulceration and in control normal subjects.

MATERIAL AND METHODS: A controlled clinical trial was performed on 50 subjects divided into 25 normal subjects and 25 patients with recurrent aphthous ulceration. The exclusion criteria include the patients which have recurrent aphthous ulcer associated with other mucosa lesion. The salivary pH was determined using a salivary pH strips.

RESULTS: On evaluation significant difference in pH level was observed between patients and control groups. There were no significant differences in pH levels between males and females in both patients and control groups.

CONCLUSION: It was concluded, that salivary pH with acidic value significantly affects RAS development.

KEYWORDS: Recurrent aphthous ulcer, Saliva, pH

INTRODUCTION:

RAS is a disorder characterized by recurring ulcers confined to the oral mucosa in patients with no other signs of disease.¹ RAS is considered a diagnosis of exclusion since hematologic deficiencies, immune disorders, and connective tissue diseases may cause oral lesions clinically similar to RAS.¹ RAS is a common oral mucosal condition and has been reported as affecting 20% of the general population at any given time. It reaches a peak of 50% in selected populations.² In children, RAS is the most common form of oral ulceration seen.³ and peak age of onset is between 10 and 19 years. After childhood

and adolescence, it may continue throughout the entire human life span.

RAS is classified according to clinical characteristics minor ulcers, major ulcers and herpetiform ulcers.¹ Minor RAU (MiRAU) is the common variety, affecting about 80% of RAU patients.⁴ It is characterized by painful round or oval shallow ulcers, regular in outline, less than 10 mm in diameter, with a grey-white pseudomembrane surrounded by a thin erythematous halo. Minor RAU usually occurs on non-keratinized mucosa such as labial mucosa, buccal mucosa and the floor of the mouth, and it is uncommon on the keratinized gingiva, palate, or dorsum of the tongue. The lesions heal within 10–14 days without scarring.³ Major RAU

(MaRAU), occurs in approximately 10% of RAU patients. The lesions are larger than 10 mm in diameter. The ulcers of MaRAU persist for up to 6 weeks or longer and often heal with scarring. MaRAU usually has its onset after puberty. Herpetic form ulcers They typically occur as crops of multiple ulcers measuring less than 5mm which may coalesce to form larger confluent areas of ulceration, usually with marked erythema. They last for 10-14 days but severity of pain is more than other forms. 5-10% of RAS are of this type. They resemble ulcers of primary Herpes simplex virus (HSV) infection. The recurrence period may be variable.^{2,5}

Saliva is considered as a vital importance for maintaining health of the oral mucosa.⁶

Saliva coating all oral surfaces has a buffering capacity which neutralizes bacterial and cariogenic acids, and has a pH range of 6.5–7.5.^{7,8} An important role of saliva in maintaining the integrity of the oral tissues is the control of oral pH.⁹ The pH of saliva is maintained by the carbonic acid/bicarbonate system, phosphate system and protein system.¹⁰ Therefore salivary flow rate influences the pH of saliva. It has been reported that there was an association between RAU and decreased salivary pH.¹¹ Low salivary flow in mouth results in to acidic environment in the oral cavity. Saliva is said to be the mirror of body by David T. Wong, DMD, DMSc. He said salivary diagnostic testing is poised to revolutionise the delivery of health and dental care by providing chair side, non-

invasive and portable disease diagnosis and health monitoring.

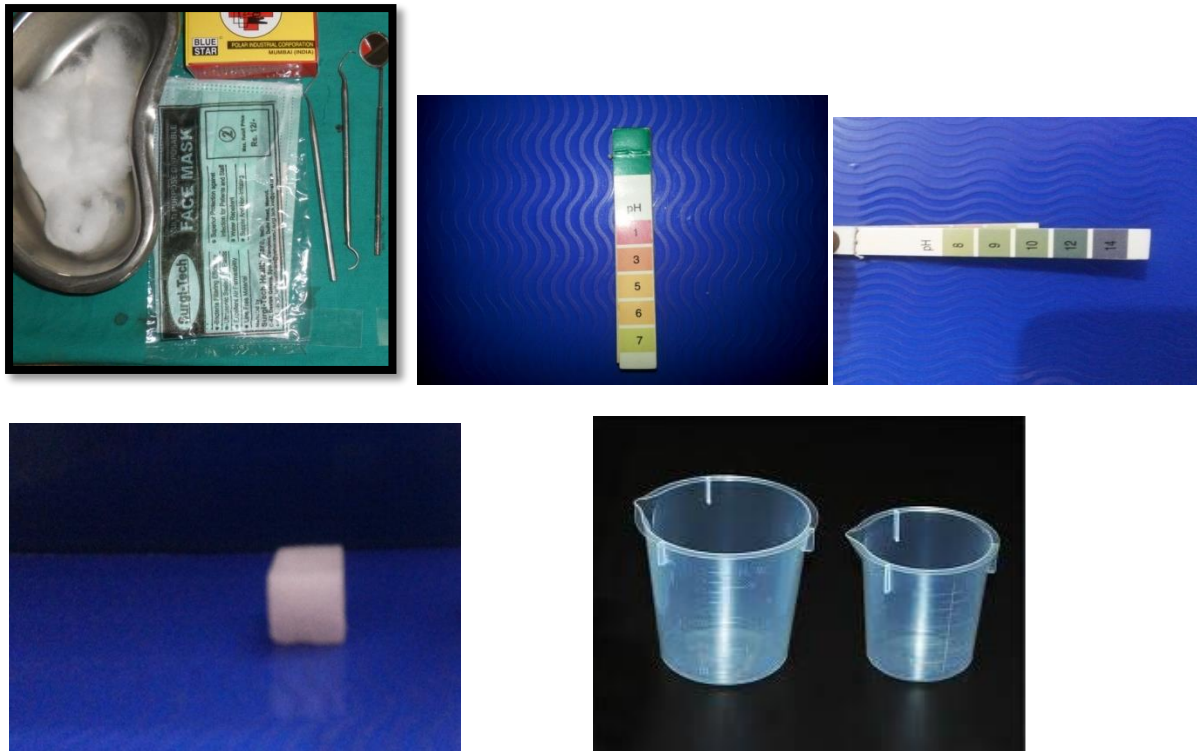
AIM AND OBJECTIVE:

Aim of the present study is to determine salivary pH in patients with recurrent aphthous ulceration and in control normal subjects. Objective of this study is to establish the importance of salivary pH in patients with RAS and assess its relation to disease development.

MATERIAL AND METHOD:

The sample consists of 50 clinically diagnosed case of R.A.S. reported to department of oral medicine and radiology, dental college Azamgarh as a case group and 50 normal healthy individuals without any RAS as a control group. Each group consisted of 25 male and 25 female patients. Informed consent and ethical clearance is taken. Exclusion criteria were the recurrent ulceration associated with any other mucosal lesions. Armamentarium used was common diagnostic instruments, paraffin wax which is used to stimulate the salivary flow, sterilized plane collecting cup for the collection of saliva samples and pH measurement strips.

The salivary pH will be determined using a sample of 2 ml mixed whole stimulated saliva which is collected from each subject in a sterilized plane cup 3 hours after breakfast. Later, salivary pH will be determined using salivary pH strips.



RESULT:

Result of this study shows that there is not much significant difference of pH value in between male and female in both case and control group. Whereas a significant difference in salivary pH value is observed between RAU group and control group as shown in table.

Parameter	Male Control 25		Female Control 25	
	Mean	SD	Mean	SD
Salivary pH	7.09	0.31131	7.19	0.17351
Parameter	Male patients 25		Female patients 25	
	Mean	SD	Mean	SD
Salivary pH	6.63	0.56071	6.603	0.43041
Parameter	Male patients 25		Male Control 25	
	Mean	SD	Mean	SD
Salivary pH	6.63	0.56071	7.09	0.31131
Parameter	Female patients 25		Female Control 25	
	Mean	SD	Mean	SD
Salivary pH	6.603	0.43041	7.19	0.17351
Parameter	Patients 50		Control 50	
	Mean	SD	Mean	SD
Salivary pH	6.617		7.14	

DISCUSSION:

Saliva is necessary for pH balance and it is being used for the diagnosis of a wide range of diseases, as saliva is proven to be an easily obtained, valuable, reliable and non invasive diagnostic media.¹² The role of salivary hyperacidity in the pathogenesis of RAU is supported by the observation of dramatic healing of such ulcer when alkaline lotions are applied.¹³

This study shows, patients with RAU have higher level of acidic saliva in comparison to control group of patients. This result was in agreement with some studies that have demonstrated that the levels of salivary pH are declined in patients with RAU.¹⁴ With this study,

positive relation of acidic saliva and RAU is established, probably because salivary PH is modified by the quantity of saliva, Salivary flow rate (SFR) influences the pH of saliva.¹⁵ In RAU group there was decreased salivary flow rate which turn the pH of patient's saliva more acidic due to painful ulcer.¹⁶

CONCLUSION:

The present study revealed that RAS development is affected by acidic pH. It concluded that salivary pH with acidic value significantly affects RAS development.

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