The recurrent aphthous stomatitis' healing duration differences in female students between the sufferer and non sufferer of chicken pox

Isidora Karsini Soewondo
Department of Oral Medicine
Faculty of Dentistry Airlangga University
Surabaya - Indonesia

ABSTRACT

Chicken pox (CP) is a generalized primary infection that occurs the first time an individual contacts the virus. The etiology of CP is a VZV virus, and the replication of virus allowing recovery in two to three weeks. During the process, the VZV may progress along sensory nerves to the sensory ganglia, where it can reside in a latent, undetectable form; and can be reactivated at any time. Recurrent aphthous stomatitis (RAS) is a recurrent ulcer in the mouth, painful, disturbing the mouth's function and esthetic when occurs in the lips. One of the etiology of RAS is the reactivation of the latent virus in the mouth. The aim of this study was to know the contribution of the latent virus in the ganglia, intervered with the differences of the healing duration of RAS in female students, between the CP sufferer and non CP sufferer. By cross-sectionally, clinical examination, after filling the questioner that included informed consent, 307 students of The St. Yusup Senior High School, Karangpilang Surabaya, were examined. In the 3rd class, there were only 6 female students that suffered RAS had CP history, while 11, student did not. Levene's test for equality of variances was done, and p: 0.698, while 2-tail sign: 0.512. According to this statistical analysis, there was no significant difference between the two groups examined. It was suggested that the female students of RAS' sufferer should maintain their balanced food intake, so the ulcer of RAS would heal quickly.

Key words*: recurrent aphthous stomatitis, healing duration, female students*

Correspondence: Isidora KS, Department of Oral Medicine, Faculty of Dentistry, Airlangga University, 47th Prof. Dr. Mustopo st. Surabaya 60132, Indonesia.

INTRODUCTION

Chickenpox (CP) is a generalized primary infection that occurs the first time an individual contacts the virus. The etiology of CP is varicella zoster virus, that responsible for two major clinical infections of man: chickenpox (Varicella) and Singles (Herpes Zoster).[1] Viral infection may result in cytolysis, chronic metabolic dysfunction, or transformation of the cell, or there may be no pathologic effect.[2] The change occurs in the middle and deeper layers of the prickle cells of the epidermis, and consists of the ballooning degeneration of the cells and the outpouring of a great deal of intra cellular oedema. In the walls and floors of the chickenpox vesicles multinucleated giant cells are found and intra nuclear inclusion bodies.[3] These cause blistering skin condition. They include the common cold sore around the mouth, which is due to herpes simplex virus (HSV) type 1, and the sexually transmitted genital herpes caused by HSV type 2. Infection with varicella zoster virus (VZV) causes the lesions of chickenpox (Varicella) and singles (Herpes Zoster). Chickenpox arises as an epidemic form after direct contact within individuals who have either chickenpox or singles, and causes an acute vesicular rash associated with fever, malaise or lymphadenopathy. Thereafter the virus remains dormant within the nerve tissue until reactivation in the form of singles.[4] Changes in the mucous membranes of the mouth and pharynx are similar to those in the skin, but the thin roof of the lesions breaks down quickly, so that shallow ulcer rather than vesicles are formed.[3] An oral ulcer is any breakdown of the lining of the mouth, which includes the cheeks, tongue, gums, lips, and roof of the mouth. The raw area of an ulcer is often very sensitive and painful.[3,5,6] In childhood, chickenpox leads to wide spread blisters. After recovery, the virus may survive in the posterior root ganglia and become reactivated within the dermatome involved as singles. The lesion of HSV and VZV are similar histologically, with oedema of keratinocytes leading to intraepidermal vesicle formation, within which damaged epidermal cells with prominent intranuclear viral inclusions may be seen.[3,4,5] The fluid in the chickenpox vesicles rapidly becomes turbid as polymorphonuclear leukocytes migrate up from the corium, inflammatory in the corium are slight.[3] This is an acute specific fever, and analogous to the acute herpetic gingivo stomatitis of herpes simplex virus. After the primary diseased is healed, VZV becomes latent in the dorsal root of ganglia of spinal nerve or extra medullary ganglia of cranial nerve.[1,7]

Dentists should bear in mind that one of every 38 dental patient is potentially a latently infections patients.[8] After the initial infection, the virus will remain dormant until reactivated. The frequency of reactivation with clinical recurrence has been reported as occurring in 40%, and 10–15% of those with the latent virus.[9] Reactivation can occur as a result of several factors that suppress the immune system. These include but are not limited, to emotional stress, trauma, cold, sunlight, extreme fatigue, fever and menstrual cycle.[9,10]

The oral cavity consists of the lips, teeth, gums, oral mucous membranes, palate, tongue and oral lymphoid system. The oral cavity plays essential roles in many bodily functions, including nutrition (mastication and swallowing), respiration and communication. Just as examining any are of the body, it is important to inspect directly and systematically all areas of the oral cavity. Many disease processes, benign and malignant, localized and systemic, may present as an ulcerative lesion in the oral cavity.[10]

Recurrent aphthous stomatitis (RAS) is an inflammatory ulcerative disease of unknown etiology. Recurrent discrete areas of ulcerations, which are almost always painful, characterize this condition. RAS frequently referred to as canker sore, are among the most common lesions of the mouth. Their recurrent pattern and associated discomfort make them extremely bothersome and at times, debilitating patients. Recurrent aphthous stomatitis (RAS) may occur as occasional single ulceration or may be manifested as a never-ending continuum of severe ulcerative lesions.[1,2,11-13] Recurrent aphthous stomatitis (RAS) are usually small, but can, in rare cases, become fairly large. They generally start as erythematous papules, which soon undergo necrosis and acquires a fibrin coating. The small crateriform ulcers have a white to yellow membrane, surrounded by an erythematous halo. Most RAS ulcers heal in one to two weeks. Patients usually complain of these lesions being very painful and intervering with eating. Nearly all aphthae healing without scarring. Recurrent aphthous stomatitis (RAS) can be distinguished from other diseases with similar appearing oral lesions, such as certain viral exanthems, by their tendency to recur, their multiplicity and chronicity. In RAS there is a history of recurrence, and lack of systemic symptoms such as fever, malaise and cervical lymphadenopathy seen in primary herpes.[1,2] In some instances, the mucosal surface may become erythematous or ulcerated. Oral mucosal macules and nodules have also been described in 14% of individuals receiving hemodialysis. Other lesions that can occur intra-orally in allograft recipient are: uremic stomatitis, geographic tongue, erythematous patch, and macules/nodules. Uremic stomatitis may manifest as white, red or grey area of the oral mucosa. The erythematous form consists of grey pseudomembrane overlying painful erythema patches, while an ulcerative form is red with a pultaceous covering. Uremic stomatitis suggested may be due to chemically based trauma from elevated levels of nitrogenous compounds.[14] The patient history, the physical examination, and the results of any indicated tests are important to the diagnosis process. If the patient history is accurate and the physical examination allows the clinician to see the lesion(s), other tests may not be necessary. The history, location and appearance of the lesions should allow the knowledgeable clinician to establish a presumptive diagnosis.[9]

The etiologies of RAS are unknown and are multiple factors. Many suggestions have been made. An autoimmune or hypersensitivity mechanism is widely considered possible, but RAS is not typical of either disease type.[12] Since the etiology of RAS is indeterminate, research has focused upon a variety of potentiating factors. Studies of these are not conclusive, but precipitating factors that have been identified include: stress, nutritional deficiencies, trauma, hormonal changes, diet and immunologic disorders. Other contributors that have received attention are: food, allergens, progesterone levels, psychologic (anxiety and depress) factors, local and oral factors, viral, bacterial and a family history.[9,15,16,17]

The aim of this study was want to know, whether the latent virus VZV in the ganglia after reactivated by some trigger to become an ulcer in the mucous membrane, different in healing duration with the one without the latent virus.

By knowing that, it can be bare in mind, that the one with the sign of CP (that can be appeared/ seen as one or some craterlike cicatrixes in the face), ha to be adviced, always maintain their good health by intake balance nutrition, in hoping the ulcer of RAS that may be occur will heals quickly.

MATERIALS AND METHOD

This study was done cross-sectionals; clinical examination after filling the questioner that included informed consent. The population studied were all of the students in the St.Yusup Senior High School, Karangpilang Surabaya in the year 1998. The students were between 15–19 years old. The equipment for the study was the routine Dentist's examination needed (Mouth mirrors, sondes, pinsets, alcohol, cotton, towels, waste-baskets etc).

After preparing the administration letters for permission of the study, the students were given the questioner that included the informed consent. The informed consent had to be signed by them. After returning the questioner, they were examined clinically by three dentists who were already trained by the author. The examination using the sun light (outdoor) since the study was in August, 1998, the dry season in Surabaya. The students had to wash their mouth or gargle first, before seated on a chair. The teeth and the mucosa were examined in a secure way with a systematically procedures, using the equipment needed.

The CP's collecting data were by looking at their face carefully to search for one or more craterlike cicatrixes, as the result of the herald spot in the skin. The questioner

filled with data, were collected and tabulated, and then continued by statistical analysis.

RESULTS

From the study that had already done, there were only 6 female students from the third class of this school, which suffered RAS with the history of CP, while 11 female students with RAS without history of CP. From the whole 307 students examined, only these 17 female students that fulfilled the study's criteria, the data was seen in the table 1. The differences of healing duration between the two groups was statistically analysis by using Levene's Test for Equality of Variances: p = 0.698, while 2 – Tail Sig. = 0.512.

DISCUSSION

According to the students, as a public understanding, in Indonesian people, RAS has some synonyms such as: sariawan, jampien, lumpangen or panas dalam. This is a condition of the occurring ulcer(s) in the oral cavity, whether it's because of a trauma, recurrent intraorally herpes or actually RAS.The anamnesis or tracking history about suffering CP, usually easy to answer or remember. The itching of the disease or secondary infection that triggering to become crusting and scarring, leave a mark that difficult to be erased. May be it made a permanently some small craterlike defect on the skin, that can't be forgotten.

The population of the respondents that filled the study's criterions was the female students from the third class of The St.Yusup Senior High School at the month of August 1999. The student's old were between 15–19 years old. This period was the productive period; the growth hormone is in an optimal one. When there is an ulcer or an aphthae happened in the oral mucosa, the healing process will take place in a short time. This is when there is no underlying illness in the body.[1,9]

In Indonesia, the begin of the school's lecture is in July, and up till 20th August, most of the time filled with activities of the celebration of National's Independence day. The stressor for the lecture's activities is begin after that, so the third class' students on the time examined, still enjoy the school's environment. The study was permitted to be done, according to this condition too. The excitement of the future final examination didn't affect them greatly, so the filling of the questioner's items go fluently.

From the table 1 above, it can be seen that the female student who suffered RAS and had been with CP, the duration of healing ulcer of RAS was 10 days, so was the group without CP history. It can be meant that the ulcers from both groups were healed just as the literature said, between 10–14 days.[1,10,16]

This was showed that the respondent's body defence still in a good condition. The minimum healed duration was three days in group I, while one day in group II. Because the students from this school had already settled with the school's regulation schedule, so the body defence was good too. In group I, the body defence was able to block the latency of the virus, so it couldn't be reactivated in a broad or deep location of the mucosa, or the part of the body, that innervated by the sensory nerve.[1,9]

In group II, the eruption of the ulcer can be covered in a fast or short duration of time, because the body defence had no latency virus. The occurrence of the ulcer may be just as a result of another etiology, such as a trauma. The destruction of the epithelium didn't become large ulcer, because the body defence had rolled it out, so the epithelium will be healed. This is just as the other authors said.[1,9]

In group I, the RAS sufferer with history of CP, the longest duration of healing ulcer was 10 days, and it happened before the menstrual cycle. According to Terri,[9] the reactivation of the latent virus can be manifest in the oral cavity as a RAS lesion. During this period, the estrogen hormone was in the lowest of the curve, so the maintenance of the mucosal barrier was very low. Oral mucosa is a very fragile epithel, and received so many injuries, that's why in this period of menstrual cycle, it can be occur an ulcer, which is assumption as a RAS ulcer.

In group II, although there was no history about CP, the RAS longest duration of healing was 10 days too. The ulcer happened before or after the menstrual cycle. It can be assumption that the oral mucosa still fragile during this period, because the estrogen hormone is still not in a standard level. The barrier of the oral mucosa was still not in optimal level, so the injury on them can be make a result as an ulcer, which is called a RAS lesion.[9] By statistical analysis the Levene's Test for Equality of Variances, p = 0.698, while 2-Tail Sign. = 0.512, this was mean that there was no significant difference between the RAS' healing duration, between the two groups examined.

The conclusion of this study was, that the body defence of the female students in the third class of the Senior High School of St.Yusup in Karangpilang Surabaya, still in good level. The ulceration caused by RAS could be healed in a short duration time, no longer than 14 days, just as the former authors said.[1,2,11,18,19] There were no differences between the duration of healing processed, in the groups of RAS sufferer, with and without the history of chickenpox infection. It can be suggested for these groups to maintain their good whole body's condition, especially for the oral mucosa, by intake balance nutrition, for avoiding the recurrency of the RAS, and so the ulcer of RAS will heals quickly.

Table 1. The duration of healing RAS' ulcer in the female students with and without history of CP

Conditions	Mean ± SD	Signficance
Chicken Pox (–)	5.167 ± 2.787	p = (> 0.05)
Chicken Pox (+)	4. 773 ± 2.533	

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