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RESEARCH ARTICLE

Study of some the pathogens isolated from the gums to the students of the Faculty of Science-AL-Muthanna University

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Abstract

This study was conducted for the purpose of investigation of some of the microbes that cause gingivitis, as collected (54) swabs the gums of students from departments the Life Sciences, Environment and Pollution in the College of Science / University Al -Muthanna for the period from October 2013 until April 2014, was also doing some tests microscopic and biochemical for the purpose of isolating and diagnosis of microbes that cause gingivitis .

During the study found of several types of microbes isolated from the gumsare :

Staphylococcus aureus(69.80%) , Staphylococcus saprophyticus (30%)
Pseudomonas aeruginosa(60.30%) ,Vibrio vulnificus(42%)
Neisseria gonorrhoea (37.70%),Vibrio cholera (35.80%)
Vibrio alginolyticus(32%),Klebsiella pneumonia (30.10%)
Escherichia coli (28.30%),Candida tropicalis(15%)
Vibrio parahaemolyticus(13%),Candida cruzi(1.88%)

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Introduction

Gingivitis can be defined as inflammation of the gingival tissue without loss of tooth attachment (i.e. periodontal ligament) . Gingivitis is an irritation of the gums. It is usually caused by bacterial plaque that accumulates in the small gaps between the may be tiny, even microscopic, but the gums and the teeth. These accumulations bacteria in them produce foreign chemicals and toxins that cause inflammation of the gums around the teeth. This inflammation can, over the years, cause deep pockets between the teeth and gums and loss of bone around teeth, an effect otherwise known as periodontitis (15) .

Proper maintenance disrupts and removes this plaque. Once cleaned, plaque will begin to grow on the teeth within hours. However, it takes approximately 3 months for the pathogenic type of bacteria (typically gram negative anaerobes and spirochetes) to grow back into deep pockets and restart the inflammatory process. Calculus may start to reform within 24 hours. Ideally, scientific studies show that all people with deep periodontal pockets (greater than 5 mm) should have the pockets between their teeth and gums cleaned by a dental hygienist or dentist every 3–4 months (16).

Many dental professionals only recommend cleanings every 6 months. If the inflammation in the gums becomes especially well-developed, it can invade the gums and allow tiny amounts of bacteria and bacterial toxins to enter the bloodstream. The patient may not be able to notice this, but studies suggest this can result in a generalized increase in inflammation in the body and/or cause possible long term heart problems. Periodontitis has also been linked to diabetes, arteriosclerosis, osteoporosis , pancreatic cancer and pre-term low birth weight babies (17) .

Gingivitis is common and affects the soft contact in tissue with the edges of the gums Dental and flayed in the presence of the gums arising in many cases by inflammation around the tooth, that results from the development of dental caries lesions on the surface of the root (19), as well as inflammation of the root of the tooth can be preceded by gingivitis (20).

The symptoms of gingivitis are as follows swollen gums, mouth sores, bright-red, or purple gums, shiny gums, swollen gums that emit pus, severe oral odor, gums that are tender, or painful to the touch, gums that bleed easily, even with gentle brushing and especially when flossing gum pockets, and bad breath (15). Endemic human mouth since birth and kinds of large numbers of microbes useful and harmful to the health of the both mouth and teeth. Several factors contributed an environment in the mouth on the proliferation of diversity microbes, including in particular the regularity of natural teeth and cleanliness and maintenance of dentures, and the amount of safety and vitality of the gum tissue and ligaments around the teeth, as well as an important factor regarding the quality of food (1).

The saliva in the mouth deposition compounds proteinuria - sugary form thin layers and transparent called Pellicle on the surfaces of dental (Enamel), which the microbes help in the mouth on the adhesion of these layers and then reproduction and accumulate large amounts and forms layers of organic thin known as plaques dental on the surfaces of the teeth, above and below the gumline. It is certain scientifically that if dental not been cleaned well and are permanent and daily and if it continues microbial plaque accumulation it leads to gingivitis (2), (3).

Gum disease is one of the most prevalent oral disease appears at the age of puberty and sometimes in women during pregnancy for reasons hormonal that gum disease common after the age of 40 is more forty both genders (14).

Methods & Materials:-

1-Specimen collection: -

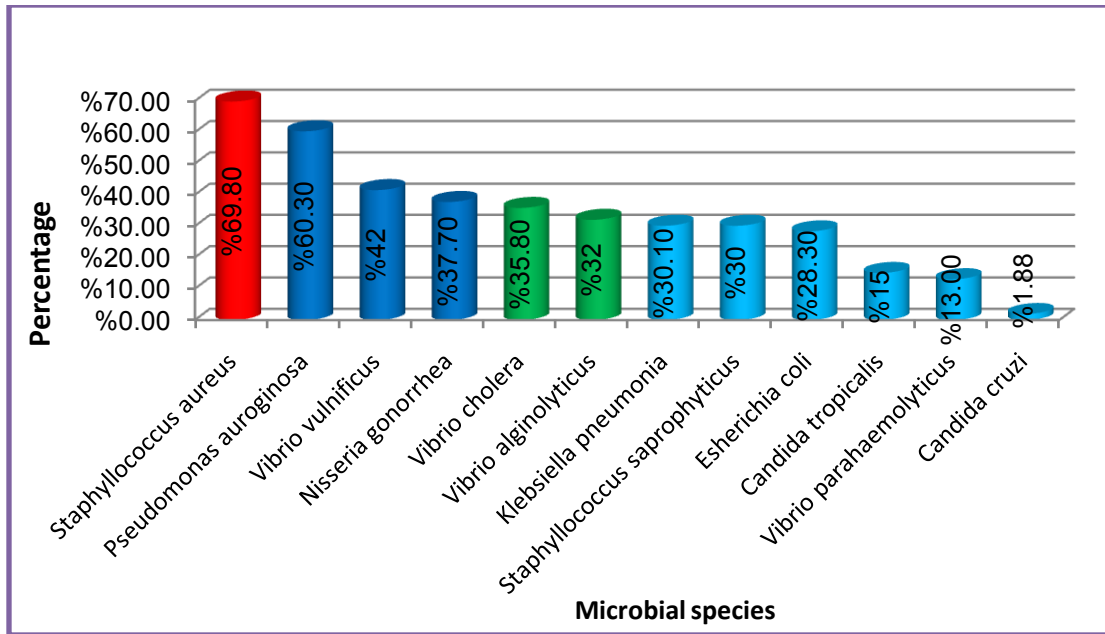
Collected (54) sample of students from the Faculty of Sciences / University in Al-Muthanna province of Muthanna for the period from 10/15/2013 until 04/15/2014 by using sterile cotton swabs and planted directly on Brain heart infusion broth media for the purpose of activating most types of microbes being considered enriched media and incubated samples cultivated at a temperature of 37 °C for 24 hours and then was cultivated microbial to dishes contained the mediums Blood agar, MacConkey agar, Mannitol salt agar, Chromagar vibrio, Chromagar candida, Chromagar pseudomonas, Chromagar staphylococcus aureus. The dishes were incubated at a temperature of 37 °C for 24 hours and after the expiration of the lap was diagnosed developing colonies.

2-Diagnosis of microbial isolates: -

Isolates diagnosed depending on the characteristics colonies planted developing, as well as the microscopic examination and portability pigmentation microbial cells gram stain, colonies diagnosed on the basis of biochemical tests which included IMVIC tests (21), and adopted in the diagnosis of isolates microbial use the Chromagar media, which is itself a compromise through diagnostic dyes shown by microbial species on the medium.

Results:

Shown by the results that have been reached and set forth in the chart (1) that there are varying proportions in the presence of microbial species that have been isolated and diagnosed among students infected with gingivitis. Seen as the proportion of bacteria **Staphylococcus aureus 69.80%**, while the proportion Seen bacteria **Pseudomonas aeruginosa 60.30%** As Seen **Vibrio vulnificus** presence ratio was **42%**, Seen as the proportion of bacteria **Neisseria gonorrhoea 37.70 %**, the proportion of either the emergence of **Vibrio cholera** was the amount of **35.80%**, while the proportion of the emergence of **Vibrio alginolyticus 32%**, the proportion of either Seen **Klebsiella pneumonia** and **Staphylococcus saprophyticus** they ranged between **(30.10 - 30%)**, While the bacterium **Escherichia coli** showed the ratio of the amount of **28.30%** as Seen **Candida tropicalis** ratio was **15%**, while the proportion of frequency emergence of **Vibrio parahaemolyticus 13%**, while there was a lower proportion Seen **Candida cruzi** which is **1.88%**.



chart(1) shows the percentage of the presence of some microbial species for people with gingivitis

And the fact that the samples that have been withdrawn from were of both genders (male and female), so it was necessary to conduct comparative ratios their presence for both genders, and by observing the chart number (2) show that there is a great disparity in the rates of presence of microbes between males and females, where the presence of microbes ratios are generally more in females than in males, and as is illustrated in the chart (2).

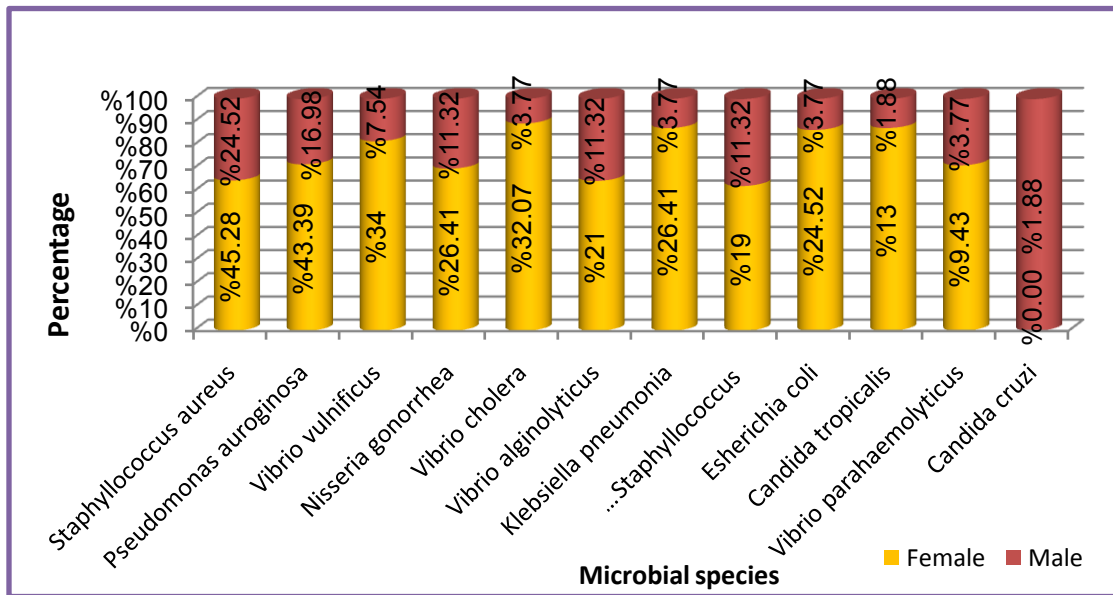


chart (2) shows the comparison between the percentage of the presence of some microbial species for people with gum disease for both genders (male and female).

And the final outcome is observed through the chart number (3) that most species microbial isolation and diagnosis of gum and for both genders are microbes with pigmentation gram negative stain and that the number was 128 isolation of microbial while the number of isolates of microbial high pigmentation grampositive stain 73 microbial isolation

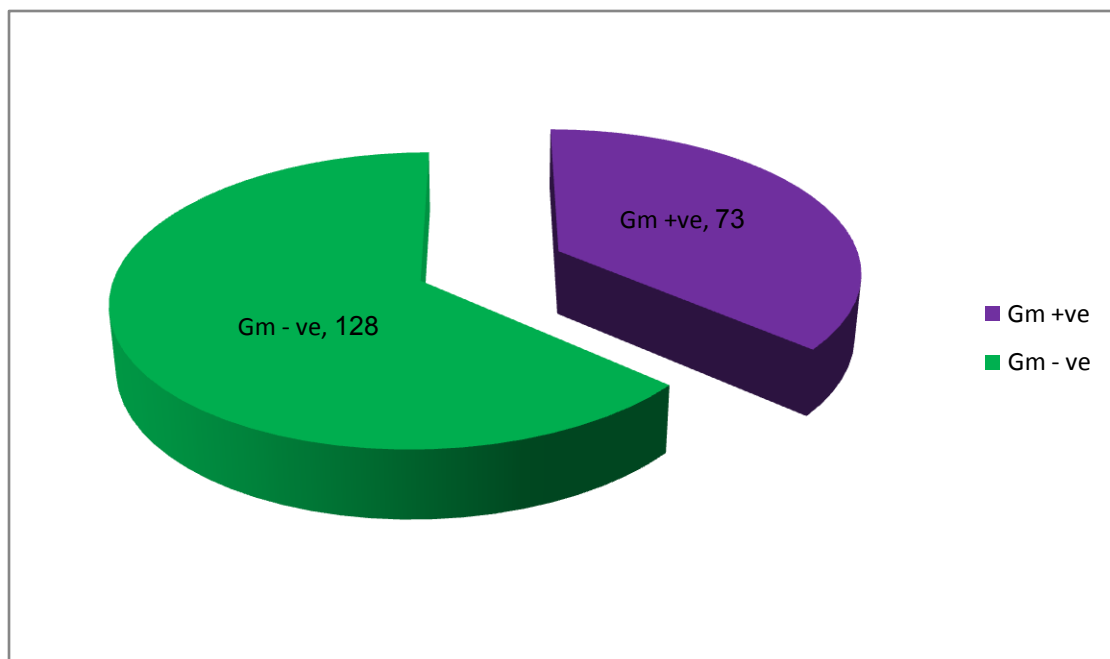


chart (3) The number of microbial isolates negative and positive for the dye gram for people with gum disease for both sexes (male and female).

:DISCUSSION

The bacteria possess two types of resistance is the natural resistance and Acquired resistance, as it has gram negative bacteria naturally resistant to a large number of antibiotics are highly effective and influential in bacteria gram positive and resume resistance to the presence of a layer Lipopoly saccharides in the cell wall have that prevent permeability concentrations inhibitory antibiotic into the bacterial cell (4) , and the problem lies in the resistance gained that increased rapidly in recent years (5).

The results showed that the bacteria gram positive Staphylococci and because of the natural presence on the skin, nose and gastrointestinal tract (6), which is caused by spread In the mouth because of its resistance mechanisms quick and easy spread these bacteria via plasmids through conjugation and transformation between them or to possess surface antigen and enzyme that help to penetrate body tissue (7)(8).

Proportion conducted or outline a comparison between the aetiology of positive and negative gram bacteria . Refer where many researchers reason issued etiology of bacterial gram positive in many mouth injuries & dental Because most of these germs are able to form cellular clusters, which is considered one of main factors for the formation of plaque, which in turn is the first step to damage dental (9) , as well as those that most germs are one of the components (normal flora) in the mouth become capable of causing injuries mouth when offer the appropriate for it conditions (10), and the same time is seen gatherings cellular belonging to those germs an essential factor in collected and the rest of the etiology of bacterial adhesion ,asthe etiology of bacterial gram negative which in turn is responsible for many infections primary in upper respiratory tract and the lower and thus be able to move to the mouth and causing various infections after adhesion on the surface of dental (11), as the results showed that the presence of bacteria Vibrio grows at a very high pH (8.5–9.5) and are rapidly killed by acid (12) .

Adults have salivary pH more alkaline than children which is probably attributed to the alkaline conditions of inflamed gingival sulci (13).

The results also showed the presence of candidiasis, which is not less important than the bacteria causing these infections candidiasis and there are many species affiliated to this genus that have been isolated from the gums *C. tropicalis* and *C. cruzi* (18) .

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