

## Clinical and Laboratory investigation of Impetigo Contagious cases in Al-Diawynia Province

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### الخلاصة

جمعت 34 حالة من الحصف المعدي من المرضى المراجعين الاستشارية الجلدية في مستشفى الديوانية التعليمي خلال الفترة 2008/11/1 إلى 2009/ 6/1 من كلا الجنسين وكانت نسبة الاناث الى الذكور ( 18:16 ) والذين تراوحت أعمارهم ما بين 1-30 سنة. أظهرت النتائج ان التشخيص المختبري كشف عن وجود *Staphylococcus aureus* في 26 مريض (76.4 %) ، بينما مرضى البقية 4 (11.76 %) ، تبين بأنهم مصابين بكلا الجنسين من بكتريا *S. aureus* و *S. pyogenes* . كشف هذا العمل نتائج مماثلة للعامل المسبب الرئيسي لمرض الحصف المعدي وهي بكتريا *staphylococcus aureus* .

### Abstract

Thirty four cases of Impetigo Contagious collected at period 1/11/2008 to 1/6 /2009 with Female: Male ratio of (18:16) with ages (1- 30) The results was found that 26 patients (76.4 %) revealed *staphylococcus aureus* in laboratory examination . four patients (11.76 %) have shown *streptococcus pyogenes* , while the remaining (11.76 %) were found to have combined bacteria. This work revealed the interesting similar results of causative agent : *staphylococcus aureus* is the main pathogen , almost consistent with western literatures.

### Introduction

Impetigo Contagious (IG) is staphylococcal , streptococcal , or combined infection characterized by discrete thin walled vesicles that rapidly become pustular and then rupture to form thin , straw colored seropurulent discharge which dries to form golden yellow crust IG occurs most frequently on the exposed parts of the body ; face , hands , neck , and extremities (1,2,3).

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Although 2 decades ago streptococci caused the majority of cases of impetigo, by the end of 1970s it became apparent that the predominant pathogen was *Staphylococcus aureus*. Most studies now find 50-70% of cases are due to *S. aureus*, with the remainder either being due to *Streptococcus pyogenes* or a combination of these two organisms (Toshkova *et al*, 2001). IG occurs most frequently in early childhood, although all ages may be affected. It occurs in temperate zone, mostly during the summer in hot, humid weather (4,5).

Common sources of infection for children are: pets, dirty fingernails, & other children in school & crowded housing areas (6).

The histopathology is that of an extremely superficial inflammation about the funnel-shaped upper portion of the pilosebaceous follicles. Group A beta-hemolytic Streptococcal skin infection are sometimes followed by acute glomerulonephritis (AGN). Some types of nephritogenic *Streptococci* are associated with impetigo contagiosa (7).

The important factor predisposing to AGN is the serotype of Streptococci. Type 49, 55, 57, & 60 strains & strain M-type 2 are Staphylococcal impetigo (8).

The aim of study was to identify the causative agents of impetigo contagiosa and determine the percent of isolation according to the site of infection, age and sex of patients.

## **Materials and methods**

### **Collection of specimens:-**

Thirty four cases were diagnosed clinically by dermatologist as Impetigo Contagiosa from patients attending the dermatology and venereal department of AL- Dewaniya Teaching Hospital at period 1/11/2008 to 1/6/2009 from both sexes, Female: Male ratio of (18:16) with ages (1- 30) Specimens were taken from the patient directly by sterile cotton swabs from the oozing or crusted lesions (9). After then transferred to the laboratory through 5 minute

for culturing on media such Blood agar and Mannitol salt agar . The plates were inoculated and incubated at 37C for 18-24 hrs. (10).

The bacterial growth was identified depending on direct examination under microscope and morphology characteristics such shape , color of colonies , Coagules test , on the type of hemolysis and sensitivity to special compounds (11). All the data were analysed statistically according to (12)using chi test.

**Results**

Thirty four case of IG were collected during hot weather with F :M ( 18 :16 ) with ages (1–30) Assessment of age presentation of patients revealed that 27 (79.41%) patients were seen in age group (1-10) and 5 (14.71%) in age group (11-20) and 2 (5.88%) in age group (21-30) ( Table 1).

**Table ( 1 ) Shows the number of cases depending on age group( years)**

Age group (year)	Number of case	Positive case	Percentage %
1-10	30	27	79.41
11-20	30	5	14.71
21-30	30	2	5.88
Total	90	34	100%

(X<sup>2</sup> cal= 32.892)  
 (X<sup>2</sup> tab= 9.21) (P<0.01) Significant

The bacterial etiological agents of impetigo were represented by 2 species (Table 2).

As it shown in the (table2) , it was found that (28/34(82.35%) isolates revealed *Staph. aureus* in the lab examination and 4/34(11.72%) isolates of *Strept. pyogenes*, where as the mixed infection (*Staph. aureus* + *Strept. pyogenes*) were represented by 2 isolates. (5.88%).

**Table ( 2 ) The number of cases depending on etiology and gender of case.**

Causative agent	+ Ve case	%
<i>Staph. aureus</i>	28	82.35
<i>Strept. pyogenes</i>	4	11.77
<i>Staph.aureus</i> + <i>Strept. Pyogenes</i>	2	5.88
Total	34	100%

$X^2$  cal = 36.95)  
 $(X^2$  tab = 6.63)  
(P<0.01) Significant

Thirty four cases of impetigo were included in this study. A Clinical and laboratory assessments revealed that 16 (47.05%) were females, and 18(52.95%) were males (Table 3).

**Table( 3) The number of cases depending on the gender**

Gender	+Ve case	%
female	16	47.05
male	18	52.95
Total	34	100%

(  $X^2$  cal = 0.12)  
 $(X^2$  tab =0.02) (P<0.01) Significant

According to the site of infection, we found that the face samples represented by 17( 50%) of cases and trunk samples represented by 7 ( 20.58%) of cases and neck& lips samples represented by 10( 29.42%) of cases( Table 4).

**Table( 4) the number of cases depending on of site of infection.**

Site of infection	Number of case	%
Face	17	50
Trunk	7	20.58
Neck& Lips	10	29.42
Total	34	8.82

( $X^2$  cal = 4.65)  
 ( $X^2$  tab = 3.84 (P<0.01) Significant

Thirty four cases of impetigo were included in this study. A Clinical and laboratory assessments revealed that (11) patients were males in age group of (1-10), and (5) patients were males in age group of (11-20), and (2) patients were males in age group of (21-30), while (16) patients were females in only age group of (1-10).

There was no significant relationship between the gender and age of patients (Table 5).

**Table (5) Number of case according to interaction between age and gender**

Age year \ Gender	1-10	11-20	21-30	Total
Male	11	5	2	18
Female	16	0	0	16
Total	27	5	2	34

( $X^2$  cal = 7.8)  
 ( $X^2$  tab = 5.99)  
 (P<0.01) non- Significant

## Discussion

IC is a common infection bacterial disease in our country , with tendency to occurs in children during hot summer . *Staph. aureus* & *Streptococci* were incriminated to be the causative factors . Although 2 decades age *Streptococci* caused the majority of cases of Impetigo , by the end of 1970 , it become apparent that the predominant pathogen was *Staph. aureus* (13). This work in our town which has taken a sample of 34 case , has revealed the interesting similar results of the causative pathogen : *Staph. aureus* constituted the majority of the cases , almost consistent with what is stated in the western literature .this results nearly to results showed by (14).

In a typical sequence, *S. aureus* spreads from nose to normal skin (approximately 11 days later) and then develop into skin lesions (after another 11 days). Lesions commonly arise on the skin of the face (especially around the nares) or extremities after trauma. Nasal carriers of *S. aureus* can present with a very localized type of impetigo confined to the anterior nares and the adjacent lip area ; pruritus or soreness of the area is a common complaint . Conditions that disrupt the integrity of the epidermis, providing a portal of entry of impetiginization, include insect bites, epidermal dermatophytosis, herpes simplex, varicella, abrasions, lacerations, and thermal burns (1).

Evidence of quantitative as well as qualitative differences in the pathogenicity of strains of *S.aureus* has been accumulating for some years and such differences have been correlated in general ways .the production of entotoxin almost exclusively by *S.aureus* made up this bacteria had special ability to invade or at least to multiply in the superficial layers of the skin (15) .

*Streptococci* constituted 11.7%, while combination of these 2 organisms constituted 11.7%. These results would be reflected on the practical treatment of IG, i.e. dermatologists would choose antibiotics covering *S. aureus* in addition to *Streptococci*. Also, theoretically post-Streptococcal glomerulonephritis would be less common or even rare

In conclusion , we have shown here that impetigo among patients can be caused by both clonally related and unrelated *S aureus* strains.

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