Isolation and Identification of Kocuria Varians for Patients

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Abstract
Kocuria species are universal in the environment and establish normal flora of humans. These are uncommon human pathogens and mostly infect immunocompromised persons. This study was carried out during the period of April 2021 to February 2021.In present study a total of 200 sample collected from patients suffering from acne. 51 specimens from patients with age (10 - 15) years, 107 specimens from acne with age (16 - 20) years, 20 specimens from patients with age (21 – 25) years and 18 specimens from acne patients with age (26 - 30) years but only four specimens of more than thirty. In clinical microbiology Vitec® 2 used as an auto instrument system for the identification (ID) and antibiotic susceptibility testing (AST). AST cards was used code 580 for G+ve bacteria. However, the samples were achieved according to manufacture instructions as follows: a sterile plastic stick applier used to take pure colonies from culture media and transfer a sufficient number of them to plastic test tubes The results were 145(72.5%) samples gave positive culture and 55(27.5%) gave negative culture. Vitec® 2 compact results was 24(16.6%) for Kocuria Varians infection but 121 (83.4%) for other bacteria. For other bacteria were 30(24.7%) Staphylococcus epidermidis, 26(21.5%) Staphylococcus simulans, 26(21.5%) coagulase negative staphylococcus and 39(32.3%) unknowns' microbes.
Keywords: Rabab J H ALHasseny, Kocuria Varians

1. Introduction

Kocuria species are ubiquitous in the environment and constitute normal flora of humans and other mammals (1). These are uncommon human pathogens and mostly infect immunocompromised individuals (2). Kocuria are gram positive, strictly aerobic, catalase positive, coagulase negative non motile cocci (3) This bacterium has been reported to cause central venous catheter related bacteraemia and peritonitis in severely debilitated chronically ill patients (4,5). Recently, this organism has been implicated in brain abscess, acute cholecystitis, infective endocarditis and other catheter related bacteremia (6-9). We report a case in a previously apparently healthy woman of acute bacterial meningitis due to Kocuria rosea with fulminant course and fatal outcome. To the best of the literature search, this is the first case report of acute meningitis caused by Kocuria rosea in an elderly woman.

The genus Kocuria named after Miroslav Kocur, a Slovakian microbiologist and characterized by Stackebrandt in 1995 (7), as new genus from micrococcus according to phylogenetic studies by using 16S rRNA gene sequence (8), the genus Kocuria related to phylum Actinobacteria, class Actinobacteria, order Actinomycetales, suborder Micrococcineae, family Micrococcaceae(8). This genus differentiated from Micrococcus by phylogenetic and chemotaxonomic studies.

Kocuria strains can be isolated from different sources include plants, animals, soil, air and fermented foods (10,11). Until this time there are more than 18 species related to Kocuria and characterized by Gram positive strains, coccid cell shaped and cells arranged in diploids, tetrads, short chains, cubical packets of eight cells and irregular clusters, non-motile, non-endospore forming, and can be differentiated from other genera within Actinobacteria on the bases of peptidoglycan type(L-Lysine 3/4), the presence of galactoseamine, glucosamine as main amino sugars in the cell wall, DNA G+C mol is66-75%, most of recorded strains were mesophilic (10, 12.)

2. Methods

Sample collection

This study was carried out during the period of April 2021 to February 2021. The study involved (200) patients were subjected for sampling which include both skin sites (comedon and pustule) for the sampling were forehead, cheek, forearm, axilla, sole from both sexes and the age of patients ranged from 13 to 30 years. These patients were diagnosed by dermatology physician, according to the signs and symptoms, in addition to be having risk factors that were determined by the information about patients were taken. In this study, patients with recent usage of local antibiotic treatment and usage cosmetic material were excluded from sampling.

Cultures of specimens

these specimens were immediately transported to the laboratory and processed using bacterial cultures, fungi cultures, and isolation and identification of bacteria and fungi. For aerobes, the samples were inoculated in nutrient broth incubated aerobically at

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37°C overnight for primary isolation. The specimens were inoculated on both blood agar and selective media. Enriched and selective media are required for recovery of aerobes, which should be freshly prepared or used within two weeks of preparation. Streaking method was used for the isolation of pure colonies. Pure colonies of gram-positive cocci were transferred and sub-cultured on blood agar. Gram negative bacteria were sub-cultured on nutrient agar. aerobes were sub-cultured on nutrient agar and neomycin blood agar.

Identification of bacteria

In clinical microbiology Vitec® 2 used as an auto instrument system for the identification (ID) and antibiotic susceptibility testing (AST). AST cards was used code 580 for G+ve bacteria. However, the samples were achieved according to manufacture instructions as follows: a sterile plastic stick applier used to take pure colonies from culture media and transfer a sufficient number of them to plastic test tubes.

3. Results & discussion

In present study a total of 200 sample collected from patients suffering from acne. 51 specimens from patients with age (10 - 15) years, 107 specimens from acne with age (16 - 20) years, 20 specimens from patients with age (21 – 25) years and 18 specimens from acne patients with age (26 - 30) years but only four specimens of more than thirty as shown in table (1).

Table (1) Distribution of growth infection among age and sex.

Age	Sex	
	Male	Female
10-15	-	51
16-20	9	98
21-25	12	8
26-30	8	10
30>	1	3
Total 200 (100%)	30 (15%)	170 (85%)

It was seen that the distribution of acne vulgaris was higher among female than male (85% and 15%) respectively. This result was correlated with Kligman, (1974) who reported the acne prevalence was more among females than in male and William et al., (2016) (13) who detected not answer about why acne resolves or why it is more persistent in females, about 12% of women and 3% of men will continue to have clinical acne until age 44. A few will have inflammatory papules and nodules into late adulthood.

A total of 200 samples were taken from acne lesions of acne patients, the samples were inoculated in nutrient agar incubated aerobically at 37°C overnight for primary isolation. The results were 145(72.5%) samples gave positive growth culture and 55(27.5%) gave negative growth culture as the following figure (1).

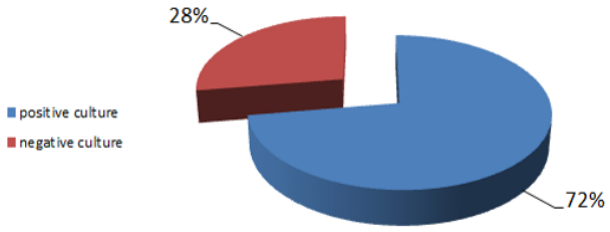

Figure (1): growth culture for samples

In clinical microbiology Vitec® 2 used as an auto instrument system for the identification (ID) and antibiotic susceptibility testing (AST). AST cards was used code 580 for G+ve bacteria. 121 (83.4%) was other bacteria only twenty-four 24(17%) specimens show positive results on culture identified as Kocuria vaian as shown in the Figure (2).

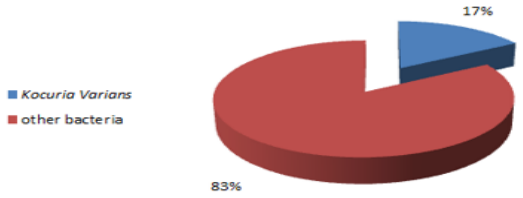

Figure (2) prevalence of Kocuria vaian among other etiological agents associated with sample isolated.

This result was like with Yu Tsa et al 2010 This report presents a case of Kocuria varians brain abscess successfully treated with surgical excision combined with antimicrobial therapy. In addition, Vitek 2 system has been used to identify and differentiate between coagulase-negative staphylococcus (14).

In the fiuger (3) was detected other bacteria by Vitec® 2 compact. The results were 30(24.7%) Staphylococcus epidermidis,26(21.5%) Staphylococcus simulans and 26(21.5%) coagulase negative staphylococcus and 39(32.3%) unknowns' microbes.

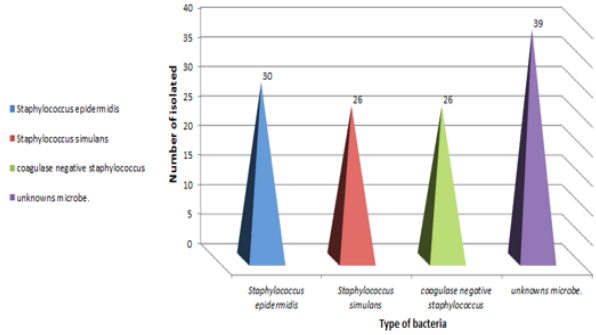

figure (3) other bacteria detected by Vitec® 2 compact

Kocuria varians cluster consists of nine species and is generally considered to be non-pathogenic commensals that colonize the skin, mucosa and oropharynx. However, they can be opportunistic pathogens in immunocompromised patients, though documented cases of infections are rare. We describe a case which presented as a brain abscess caused by Kocuria varians. To our knowledge, this is the first reported case of Kocuria varians associated with brain abscess (14).

4. Conclusion

Differences in bacterial isolates were observed in lesions of Acne Patients but the Kocuria varians was the first bacteria found in acne.

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