



**Journal
of
Al - Azhar University - Gaza
Natural Sciences**

**This special issue is released on the occasion of the International
Conference on Basic and Applied Sciences (ICBAS2010)
10-12 October 2010**

A Refereed Scientific Journal

**Published by
Deanship of Postgraduate Studies and Scientific Research
Al - Azhar University - Gaza
Palestine**

ISSN 1810-6366

Volume: 12, ICBAS Special Issue

Short Research Communication:
Bacterial Infection Threat in the X-ray Department

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Dear Sir,

X-ray department is a source of ionizing radiation and hence needs a special care. Unfortunately, another threat is known as nosocomial infection which considered one of the most important public health problems in the world today [1]. Approximately 2 million nosocomial infections occur annually in the United States, resulting in considerable morbidity, mortality and cost [2]. Numerous studies have been conducted as to how nosocomial infections are spread, some of these studies reported that are great interest indicate that x-ray technologists involve the spread of infection through the radiology department [3]. The diagnostic imaging department considered the central area for spreading of nosocomial infection, where most of which were identified as *Staphylococcus aureus*. Locally at our hospitals, there is no evidence based to confirm the presence of nosocomial infection in the radiology departments. So this study was performed to confirm the presence or absence of microbial contamination on investigated x-ray cassettes.

The study sample consists of 56 x-ray cassettes where sterile swabs were taken from different sites and investigated for the presence of microbial contamination using standard conventional microbiological techniques. Our findings showed that most of x-ray cassettes were contaminated bacteria (60.7%) and most of these bacteria were coagulase negative staphylococci (CNS). No significant relationship exist between size of x-ray cassette and the presence of contamination (P value >0.05). Also, no significant relationship exist between site of swab taken from x-ray cassette and the presence of these bacteria (P value >0.05). However, no statistical relationship was found

between the using of gloves while taking sample and the presence of bacterial contamination (P value >0.05). Meanwhile, we showed that the most contaminated cassettes were the smallest type (18x24) cm and (24x30) cm with a percent of 66.7% of these cassettes were bacterially contaminated. Finally, the highest percentage of bacteria was found among the swabs that taken from the center of cassette (64.1%) than that taken from peripheral of cassette (52.9%), but this difference did not reach statistical significance (P>0.05).

Nosocomial infections result from different types of pathogens. Even CNS constitute a major component of the normal skin and mucosal microflora, it was commonly isolated from clinical specimens and identified as important agents of hospital acquired infections especially in immunocompromised individuals, neonates and patients with internal prosthetic devices. Among all CNS, *Staphylococcus epidermidis* strains represent the most frequent cause of nosocomial sepsis and the most common agents of infections with implanted medical services [4]. The x-ray room is considered as one of the most suitable places for pathogen transmission. According to this study, most of x-ray cassettes investigated were contaminated with CNS bacteria (60.7%). This result demonstrated that x-ray cassette is considered as a source of infection with CNS. This study is in agreement with other results [5,6,7,8].

In conclusion, this study concluded that the x-ray cassette is a source of bacterial infection, especially with CNS and this is related to the bacterial presence in all parts of x-ray cassette (peripheral and central). In addition the x-ray department may be responsible for bacterial infection among medical radiographers and/or the transference of bacterial and other pathogen to patients.

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ISSN 1810-6366

المجلد ١٢، عدد خاص