Report

The specimen used for microbiological examination was a drainage site swab from an abdominal drain tube. This was obtained from a post surgical infection due to a nick in the small intestine following an emergency appendectomy. This specimen was grown on HBA, MAC, and HBA+Neo media plates. The colonies obtained were checked for type, color, and quantity, and were further used for gram staining. Finally, antimicrobial susceptibility testing was performed and the specimen was categorized as susceptible or resistant to specific antibiotics. All results were recorded and analyzed to identify the genus and species of the causative infectious organism.

When the plates were checked after incubation in aerobic and anaerobic conditions, there was heavy growth on the HBA plate cultured aerobically and no growth on the HBA + Neo plate cultured anaerobically, proving that the organism is an aerobic organism. The growth on the HBA plates was found to be swarming, which is characteristic of Proteus species. Growth was seen on MAC plates too, but the colonies were colorless proving that it is a non-lactose fermenter. The colonies grown on the HBA plate were used for gram staining and microscopic examination of the stained specimen showed gram negative rods. Apart from these, a large number of polymorphoneutrophils (PMNs) were observed, which is indicative of an infection.

These tests proved that the organism was an aerobic gram negative bacillus that is a non-lactose fermenter. It showed swarming growth under aerobic conditions and its microscopic examination indicated neutrophilia. I suspected it to be Proteus, and in order to confirm this I performed an oxidase test and urease production test. The oxidase test was negative and the urease production test was positive, providing more conclusive evidence that the organism is Proteus.

Antimicrobial susceptibility tests were carried out and the results indicated that the organism was susceptible to Tobramycin, Gentamicin, and Ciprofloxacin, and resistant to Ampicillin and Cephalothin. These results indicate that the organism could be *Proteus vulgaris* as it is resistant to Ampicillin and Cephalothin. The species of the organism can also be confirmed by performing the indole test and the deoxycholate citrate agar test.

Proteus vulgaris belongs to the Enterobacteriaceae family and it is found in the intestines of humans and animals. It is an opportunistic pathogen which causes infection in immunocompromised patients and does not affect healthy individuals. It may lead to urinary tract infections, wound infections, meningitis, and rheumatoid arthritis. It is particularly found to be involved in infections that occur following surgical interventions leading to pus, fever, and neutrophilia (Rozalski *et al*., 2012).

In this case, the patient had undergone an emergency appendectomy, following which she developed fever and severe pain, along with the observation of peritoneal pus. The results obtained in the microbiological tests were consistent with the common post surgical infection causing microorganism belonging to the Proteus species. Based on the antimicrobial susceptibility tests, the infection may be treated with Tobramycin, Gentamicin, or Ciprofloxacin, as the organism was found to be susceptible to these antibiotics.

References

Różalski, A., Torzewska, A., Moryl, M., Kwil, I., Maszewska, A., Ostrowska, K., … Stączek, P. (2012). Proteus sp. – an opportunistic bacterial pathogen – classification, swarming growth, clinical significance and virulence factors. *Folia Biologica Et Oecologica*, *8*(1), 1–17. doi: 10.2478/fobio-2013-0001