Conclusions: The results show that the comprehensive knowledge of MDRAB and protection adherence is high among our nurses. The protection adherence may be increased by providing an in-occupation education based upon the knowledge of MDRAB. Our study results could provide as a reference for strategies develop in preventing infection.

PS 1-079

DEEPLY SITUATED INFECTION FOCUS SECONDARY TO E. COLI BACTEREMIA – A CASE OF THIGH NECROTIZING FASCIITIS WITH UNUSUAL AND EASILY OVERLOOKED PRESENTATION

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Background: Necrotizing fasciitis is a life-threatening and rapid-progressing soft tissue infection. Early diagnosis with prompt surgical intervention is crucial. However, it is difficult to diagnose deeply situated necrotizing fasciitis. We herein present a case of necrotizing fasciitis which might be secondary to E. coli bacteremia, in order to highlight the challenges of accurate diagnosis and suitable treatment.

Clinical scenario: A 64-year-old woman had past history of ovarian cancer with colon metastasis and received transverse colostomy 6 months ago. She presented with left inguinal and hip pain since 3 days prior to ICU admission. Her laboratory data revealed pancytopenia. She developed septic shock and acute respiratory failure a few hours later and was admitted to ICU. The pelvic CT scan was arranged and it showed septic arthritis of left hip and iliac fossa and medial thigh. No skin color change was found. Fever and dizziness were noted at emergent room. Her laboratory data revealed very mild swelling and local tenderness of left medial thigh. No skin color change was found. No skin color change was found. She developed septic shock and acute respiratory failure a few hours later and was admitted to ICU. The pelvic CT scan was arranged and it showed septic arthritis of left hip and iliac fossa and medial thigh. No skin color change was found. Fever and dizziness were noted at emergent room. Her laboratory data revealed very mild swelling and local tenderness of left medial thigh. No skin color change was found.

Discussion and conclusion: The possible pathogenesis of our patient was enteric bacteria translocation induced by malignancy with colon invasion. From the event we encountered and the literature review, we concluded that when facing the suspicious case of necrotizing fasciitis, in addition to general approach, some robust diagnostic tools such as laboratory findings and diagnostic imaging are useful when the clinical features aren’t typical.

PS 1-080

CAPACITANCE SENSOR FOR DETECTING ESCHERICHIA COLI IN URINARY TRACT INFECTION DIAGNOSIS

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Purpose: Escherichia coli (E. coli) is one of the most dangerous pathogens responsible for the majority of food-borne outbreaks and common healthcare-associated infections such as the urinary tract infection. E. coli is responsible for up to 80% of the UTIs, causing up to 70% of community-acquired and 50% of hospital-associated UTIs. Conventional bacterial detection method usually involves labor-intensive and time consuming procedures of microbiological culturing followed by confirmation with biochemical or serological tests. In this study, we developed a high-sensitive interdigitated gold microelectrode sensor based on double-layer capacitance to detect E. coli in human urine samples for UTI diagnosis.

Methods: The gold interdigitated microelectrode sensor was fabricated on a glass slide by microfabrication. IM-6eX impedance analyzer was used to measure the impedance from 1 Hz to 1 MHz with a sinusoidal signal of 100 mV and THALES software was used for equivalent circuit fitting.

Results: Impedance spectroscopy was measured at different growth intervals after inoculating E. coli cells in control urine sample. The impedance spectrum were fitted with electrical equivalent circuit consists of double-layer capacitance (Cdl) and solution resistance (Rs). A constant Rs value was obtained, and whereas a significant change in Cdl was observed during the 12 h growth time. The Cdl of the sensor is capable of detecting E. coli growth as shown in Figure. E. coli formed biofilm structures on sensor surface due to urine as growth medium and this caused the Cdl to change during the 12 h growth time. The Cdl of the sensor is capable of detecting E. coli growth as shown in Figure. E. coli formed biofilm structures on sensor surface due to urine as growth medium and this caused the Cdl to change during the 12 h growth time. The Cdl of the sensor is capable of detecting E. coli concentrations ranging from 7 × 10^7 to 7 × 10^9 cells/ml.

Figure. Change in double-layer capacitance during E. coli growth in urine with different cell concentrations.

Conclusions: The interdigitated microelectrode impedance sensor has been proven to be an effective tool for monitoring E. coli growth and quantifying E. coli in urine for UTI diagnosis.