

PATHOLOGICAL LESIONS AND BACTERIAL ISOLATION OF ACINETOBACTER BAUMANNII IN EXPERIMENTALLY INFECTED RABBITS

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ABSTRACT : *Acinetobacter baumannii* is one of the most important opportunistic microorganisms, which causing sepsis and nosocomial pneumonia with different pathological lesions in different organs. This study aimed to experimentally infecting of rabbits with *A. baumannii* to detect the grossly and microscopically lesions as a result of infection, and to isolate of organism from internal organs of study animals. The findings showed that intraperitoneal injection of *A. baumannii* disseminate this pathogen rapidly to other organs such as lung, liver, and kidney when compared to intranasal rout. Additionally, the organism revealed variable gross and microscopic lesions in internal organs of rabbits. In lung, *A. baumannii* infection resulted in an interstitial pneumonia, thromboemboli, pulmonary edema with areas of atelectasis and pulmonary emphysema; whereas in kidney, interstitial nephritis with renal fibrosis and exudation in the kidney were seen. In liver, microscopic examination reported that there was massive hepatic fibrosis with hepatitis due to focal inflammatory cells infiltration as neutrophils, macrophages and lymphocytes. Centrilobular necrosis in interstitial tissue and in areas near or around the hepatic central vein and portal tracts of liver were seen. In other organs (intestine, meninges and brain), the findings showed that there were enteritis and onconecrosis of entire villi of intestine with necrosis of the crypts of lieberkuhn in addition to meningitis, perineuronal edema and perivascular leukocyte cuffing in intestine, meninges and brain, respectively. We concluded that this bacterium can cause many pathological lesions in different organs, more severely, in lung, liver and kidney, respectively when compared to other organs. For our knowledge, the current study considers as the first and study in Iraq targeting detection pathological effects of *A. baumannii* on body organs.

Key words : Interstitial pneumonia, nephritis, hepatic fibrosis, rabbits, Iraq.

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INTRODUCTION

Acinetobacter baumannii is a gram negative, non-fermenter, non-motile, pleomorphic and aerobic bacterium that considered as one of the most opportunistic pathogens, usually associated with nosocomial infections (Darren *et al*, 2017; Muhammad *et al*, 2018; Ancong *et al*, 2020). *Acinetobacter baumannii* grows on different media such as MacConkey agar, blood agar and chocolate agar. On blood agar, this bacterium forming colorless, shiny mucoid colonies that being non-hemolytic and smooth in contexture with a diameter of 1–2 mm post 18–24 hours when incubate at 37°C. On MacConkey agar, it produces colorless and shiny mucoid colonies of tomb-shaped indicating the non-lactose fermenting ability.

Also, it appears pink color colonies on selective agar (Ciftci *et al*, 2015; Almasaudi, 2018). In general, *Acinetobacter* spp. is present in wet environments such as moistsoil/ mud, water treatment plants, wetlands, ponds, wastewater, fish farms and even seawater, and could persist for a long period in harsh environments of hospital including walls, medical devices and surfaces (Al Atrouni *et al*, 2016; Pourhajibagher *et al*, 2016; Qi *et al*, 2016).

In human, *Acinetobacter baumannii* consider an opportunistic pathogen seldom causes disease in healthy individuals; however, it responsible for causing the diseases especially in immunocompromised patients due to septicemia, bacteremia, soft tissue infections, urinary tract infections and pneumonia, which appear as an acute