



Asymptomatic Bacterial Biofilm Observed on an Analgesic Epidural Catheter

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Clinical Image

Pain management after blunt chest trauma with fractured ribs often requires thoracic epidural analgesia as it is known to improve patient outcomes. However, long-term catheters use increases the risk of catheter-related infections, with a reported risk around 4% for thoracic epidural catheters. Moreover, epidural catheter colonization diagnosed by standard culture occurs in about 12% cases. The accompanying image represents the external surface of a thoracic epidural catheter inserted under aseptic conditions for blunt chest trauma and removed five days after insertion (Figure 1). The distal catheter tip was chemically fixed after aseptic removal and observed by Scanning Electron Microscopy. As the patient did not have any sign of local or systemic infection, this biofilm represents the bacterial colonization occurring after catheter placement and is due to bacterial migration along the epidural catheter track. Biofilms have been defined as a structured bacterial aggregate attached on a surface and surrounded by a self-produced extracellular polymeric matrix, which makes it extremely difficult to culture. Indeed, standard culture of this catheter was negative. Thus, culture may underestimate medical devices' bacterial colonization. The use of appropriate techniques in daily clinical practice could enlighten the pathogenesis of biofilms formation and catheter-related infections and improve their diagnosis, treatment and prevention.

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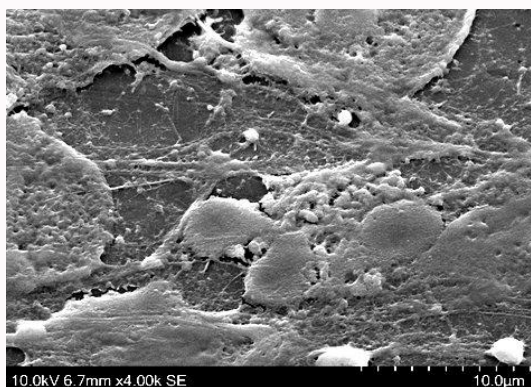


Figure 1: Bacterial biofilm observed by Scanning Electron Microscopy observed on the external surface of an analgesic epidural catheter.