Daniah Alhamndawee, MBChB

East Surrey Hospital, Surrey and Sussex Healthcare NHS Trust, Redhill, United Kingdom Al-Karkh General Hospital, Baghdad, Iraq

Role of Intraoperative Antibiotic Wound Irrigation in Reducing Surgical Site Infection Following Open Appendectomy: A Randomized Controlled Trial

Surgical site infection (SSI) remains a common complication after open appendectomy, particularly in low- and middle-income countries. Intraoperative wound irrigation with antibiotic solutions has been proposed as a preventive strategy, though its effectiveness is debated. This double-blind randomized controlled trial, conducted at Abu Ghraib General Hospital between July 2023 and December 2024, assessed whether irrigation with ceftriaxone and metronidazole reduces SSIs compared with saline. A total of 410 patients aged 15–50 years undergoing open appendectomy for acute appendicitis were randomized to receive either layer-by-layer antibiotic irrigation or saline irrigation. Postoperative follow-up on days 10, 15, and 30 evaluated SSI using CDC criteria. The SSI rate was 4.1% in the antibiotic group and 6.6% in the saline group, a non-significant difference ($p = 0.278$). In patients with perforated appendices, SSI incidence remained similar between groups. Patients who developed SSIs had significantly higher preoperative CRP and WBC values ($p < 0.0001$), underscoring their predictive value. Hospital stay duration and other postoperative outcomes did not differ significantly. These findings suggest that intraoperative antibiotic irrigation with ceftriaxone and metronidazole does not confer a significant advantage over saline in preventing SSIs following open appendectomy. Routine use may therefore not be warranted, though elevated inflammatory markers may help identify higher-risk patients who require closer surveillance.

Biography

Dr. Daniah Alhamndawee is a GMC-registered physician at East Surrey Hospital, UK. She has broad clinical experience across medicine, surgery, pediatrics, and emergency care, with a growing research focus on infection prevention and patient safety. Her background includes studies on oxidative stress and urological health, alongside recent work evaluating strategies to reduce surgical site infections. She has led quality improvement initiatives, delivered educational sessions on infectious disease management, and was recognised for excellence during the COVID-19 pandemic.

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