UNIVERSITAS
GADJAH MADA
Isolasi Bakteri dan Uji Sensitivitas Antibiotik Terhadap Bakteri di Ruang Kerja Tindakan Bedah Mulut
Alfisyah Nuril Fatah Rabani, drg. Muhammad Reza Pahlevi, Ph.D; drg. Didit Istadi, Sp.B.M.M., Subsp.Ped.OM(K)
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

INTISARI

Resistensi bakteri merupakan ketahanan suatu mikroba terhadap jenis antibiotik tertentu. Resistensi bakteri dapat terjadi di ruang bedah tindakan bedah mulut. Bakteri yang resisten dapat menimbulkan infeksi nosokomial dan kebal terhadap efek terapeutik dari antimikroba. Salah satu bakteri yang dapat mengalami resistensi dan dapat ditemukan pada tindakan bedah mulut yaitu bakteri *Staphylococcus aureus*. Penelitian ini bertujuan untuk mengisolasi bakteri *Staphylococcus aureus* pada saat tindakan bedah mulut, kemudian diuji sensitivitasnya terhadap antibiotik amoksisilin dan klindamisin.

Penelitian ini dilakukan dengan mengusap area sekitar tindakan bedah mulut dengan menggunakan *cotton swab* kemudian isolasi dengan metode *streak plate* di media agar darah. Koloni bakteri target *Staphylococcus aureus* diambil menggunakan ose kemudian dilakukan uji KOH, pewarnaan gram, katalase, MSA, oksidase, Voges-Proskauer, dan urea. Setelah itu, bakteri yang sudah teridentifikasi dilakukan uji sensitivitas terhadap antibiotik dengan metode Kirby-Bauer atau difusi kertas cakram. Pengujian tersebut menggunakan cakram antibiotik amoksisilin dan klindamisin. Data berupa diameter zona hambat kemudian dilakukan uji ANAVA dua jalur dengan perangkat lunak SPSS (a= 0,05).

Hasil penelitian menyatakan bahwa pada tindakan bedah mulut di sekitar ruang kerja terdapat bakteri *Staphylococcus aureus.* Hasil uji sensitivitas antibiotik pada kelompok uji dari ketiga sampel dengan bakteri target *Staphylococcus aureus* menunjukkan rerata diameter zona hambat terhadap amoksisilin sebesar 22,44 ± 0,493 mm dan terhadap klindamisin sebesar 17,32 ± 0,67 mm. Pada kelompok kontrol positif rerata diameter zona hambat terhadap amoksisilin sebesar 30,17 ± 0,45 mm dan terhadap klindamisin sebesar 18,4 ± 0,478 mm. Berdasarkan data tersebut analisis ANAVA dua jalur menunjukkan pengaruh signifikan diameter zona hambat pada amoksisilin dan klindamisin kelompok uji terhadap kelompok kontrol. Berdasarkan perhitungan tersebut dapat disimpulkan pada tindakan bedah mulut ditemukan bakteri *Staphylococcus aureus* yang resisten terhadap antibiotik amoksisilin dan intermediat terhadap klindamisin.

Kata kunci: Resistensi bakteri, tindakan bedah mulut, *Staphylococcus aureus*, sensitivitas antibiotik, metode Kirby-Bauer.

UNIVERSITAS
GADJAH MADA

Isolasi Bakteri dan Uji Sensitivitas Antibiotik Terhadap Bakteri di Ruang Kerja Tindakan Bedah Mulut
Alfisyah Nuril Fatah Rabani, drg. Muhammad Reza Pahlevi, Ph.D; drg. Didit Istadi, Sp.B.M.M., Subsp.Ped.OM(K)
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

ABSTRACT

Bacterial resistance is the ability of a microorganism to withstand the effects of a specific antibiotic. Such resistance can occur in the surgical environment, particularly during oral surgical procedures. Resistant bacteria may cause nosocomial infections and exhibit reduced susceptibility to the therapeutic effects of antimicrobial agents. One bacterium commonly associated with resistance in oral surgery is Staphylococcus aureus. This study aims to isolate Staphylococcus aureus during oral surgical procedures and to evaluate its antibiotic sensitivity against amoxicillin and clindamycin.

This study was conducted by swabbing the area surrounding the oral surgical site using a sterile cotton swab, followed by bacterial isolation through the streak plate method on blood agar medium. Colonies of the target bacterium, Staphylococcus aureus, were subsequently collected using an inoculating loop and subjected to a series of identification tests, including the KOH test, Gram staining, catalase test, mannitol salt agar (MSA) test, oxidase test, Voges–Proskauer test, and urease test. After identification, antibiotic susceptibility testing was performed using the Kirby–Bauer disk diffusion method. Amoxicillin and clindamycin antibiotic discs were employed in the assay. Data in the form of inhibition zone diameters were then tested for two-way ANOVA using SPSS software ($a = 0.05$).

The results of this study revealed the presence of Staphylococcus aureus in the operative field during oral surgical procedures. Antibiotic susceptibility testing of the experimental group, consisting of three Staphylococcus aureus isolates, demonstrated a mean inhibition zone diameter of 22.44 ± 0.493 mm for amoxicillin and 17.32 ± 0.67 mm for clindamycin. In the positive control group, the mean inhibition zone diameter was 30.17 ± 0.45 mm for amoxicillin and 18.4 ± 0.478 mm for clindamycin. Two-way ANOVA analysis indicated a significant difference in inhibition zone diameters between the experimental and control groups for both antibiotics. Based on these findings, it can be concluded that Staphylococcus aureus isolated during oral surgery exhibited resistance to amoxicillin and intermediate susceptibility to clindamycin.

Keywords: *Bacterial resistance, oral surgery, Staphylococcus aureus, antibiotic sensitivity, Kirby-Bauer method*