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Complicated management of a surgical site infection following open reduction and internal fixation of a mandibular condylar fracture in a patient with multiple antibiotic allergies

KEYWORDS

Cephalosporins;
Hypersensitivity;
Penicillins;
Surgical wound
infection

The incidence of surgical site infection (SSI) after open reduction and internal fixation (ORIF) of mandibular fractures ranges from 6 % to 32 %.¹ Management of SSI following ORIF may require antibiotic therapy and removal of the fixation implant. Although true antibiotic allergies are rare, they can be associated with life-threatening events.² Therefore, antibiotics must be prescribed with caution in patients with a history of antibiotic allergy. Herein, we reported a case of SSI after ORIF for a mandibular condylar fracture in a patient with multiple antibiotic allergies requiring a challenging management.

A 32-year-old Japanese woman was referred to our hospital with bilateral mandibular condylar fractures caused by a traffic accident. Her medical history included depression and pyelonephritis, and she reported allergies to cephalosporin antibiotics. She underwent ORIF of the right mandibular condylar fracture on the same day (Fig. 1A and B). Clindamycin (1,800 mg/d) was administered for SSI prophylaxis, starting 30 min before the operation and continued until 24 h postoperatively. On postoperative day 3, purulent discharge was observed from the submandibular incision. Computed tomography revealed air within the wound (Fig. 1C). Wound drainage was performed by

reopening the incision, and a swab sample was obtained for microbiological testing. Clindamycin (1,800 mg/d) was reinitiated; however, purulent discharge persisted for several days. On postoperative day 10, urticaria appeared on her extremities (Fig. 1D), leading to a diagnosis of clindamycin allergy. Microbiological testing showed that the isolated *Streptococcus mitis* and *Streptococcus oralis* strains were resistant to clindamycin but susceptible to ampicillin. Clindamycin was discontinued, and quinolones were initiated. However, vertigo, nausea, and urticaria developed shortly after quinolone administration, necessitating their discontinuation as well. An infectious disease consultation was obtained. A detailed history revealed that the patient's reported cephalosporin allergy had occurred during empirical treatment of pyelonephritis. Because the agents used in that setting—such as ceftriaxone, cefotiam, and ceftazidime—are second- or third-generation cephalosporins, it was suggested that penicillin antibiotics could be administered safely. Accordingly, ampicillin/sulbactam 12 g/d was initiated. No allergic reaction was observed, and the patient's SSI resolved. The patient was discharged on postoperative day 17.

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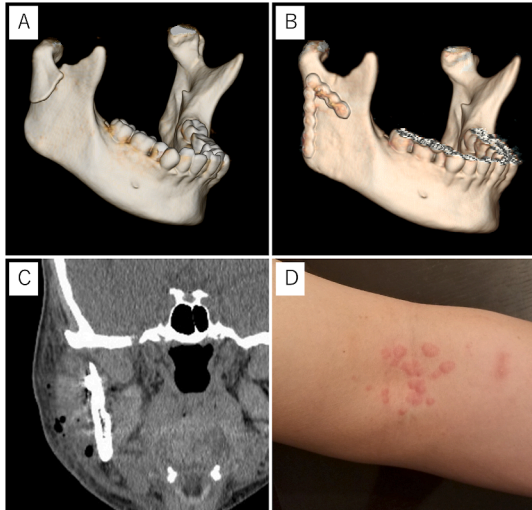


Figure 1 Radiological and clinical images of the patient. (A) Preoperative computed tomography (CT) image of the right mandible. (B) Postoperative CT image of the right mandible. (C) CT image obtained at the time of purulent discharge from the surgical wound, showing the presence of air at the surgical site. (D) On postoperative day 10, urticaria was observed on the patient's extremities, consistent with an allergic reaction to clindamycin.

Generally, penicillins are avoided in patients with a history of cephalosporin allergy and vice versa. However, cross-reactivity does not uniformly occur across all cephalosporin generations.³ In this case, no allergic reaction to penicillin was observed, as the patient's previous hypersensitivity was limited to second- and third-generation cephalosporins.

Reportedly, that up to 98 % of patient-reported penicillin allergies are inaccurate.⁴ When penicillin is unnecessarily avoided due to presumed cross-reactivity with other β -lactam antibiotics, clinicians may resort to alternative agents, which can increase the risk of adverse effects and reduce prophylactic efficacy.⁵ Clindamycin prophylaxis for SSI in patients labeled as penicillin-allergic has been associated with a fourfold increase in SSI compared with penicillin use.⁴ In this case, the administration of clindamycin instead of ampicillin/sulbactam likely contributed to SSI onset and prolonged hospitalization.

Therefore, in patients with reported cephalosporin allergy, it is essential to carefully evaluate which cephalosporin generation was implicated in the allergic reaction when selecting antimicrobial therapy.

Declaration of competing interest

The authors declare no conflicts of interest relevant to this article.

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