Malodour from oral malignant fungating wound: sprayed metronidazole – case report

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ABSTRACT
Metronidazole gel or ointment is recommended for the treatment of malodour from malignant fungating wounds. However, this medication may not settle adequately in oral lesions because its texture causes discomfort and it tends to be washed out by saliva. We report a case of malodour due to an oral lesion that was well controlled with sprayed metronidazole.

BACKGROUND
Malignant fungating wounds are chronic wounds that occur when malignant tumours invade the skin or superficial mucosal areas which occur in 5%–14.5% of patients with advanced cancer. 11.9% of patients with these wounds experience malodour. 1 Symptoms of malignant fungating wounds include malodour, profuse exudate, pain and itching, and risk of bleeding. Malodour, in particular, may lead to low self-esteem, social isolation and poor quality of life. 1 Malignant fungating wounds are characterised by an abnormal blood supply. 2 At these necrotic sites, aerobic and anaerobic bacteria rapidly multiply, producing pungent, malodourous and nauseating odours. 2 Approximately, 70% of odour-causing micro-organisms are anaerobic bacteria, which include Clostridium species that generate volatile metabolites, such as dimethyl trisulfide. 2 The recommended antimicrobial therapy involves the use of topical metronidazole ointments or gels which are commonly used to treat malodour on the body surface. 1, 3 However, ointments or gels may not settle adequately in oral lesions because their texture causes discomfort and they are easily washed out by saliva. Herein, we present a case in which spraying metronidazole was effective against malodour caused by gingival cancer.

CASE
An 82-year-old man with right maxillary gingival cancer was admitted to our palliative care unit because of decreased oral intake. Five months prior to his admission, the patient was diagnosed with locally advanced right maxillary gingival cancer (cT4aN1M0: stage IV). As he did not want to receive treatments, he was not provided with aggressive anticancer treatment and was followed up by a home visit doctor and nursing service provider. He had a history of spinocerebellar degeneration and performance provider. He had a history of spinocerebellar degeneration and performance score (ECOG) 4. A tumour was observed in the right maxillary gingiva with CT scan demonstrating invasion of the maxillary bone. Blood tests showed no evidence of anaemia or organ damage. Therefore, the patient’s decreased oral intake was thought to be caused by the enlarged tumour interfering with chewing. After implementing daily oral care and arrangements in the form of meals, the patient’s oral intake improved. On the 33rd day of the patient’s hospital admission, his oral tumour partially collapsed with transient bleeding. A strong odour (7/10 in the odour Numeric Rating Scale (NRS) 7/10 and odour score 7 of 4 (ie, very unpleasant odour, smell when entering a room)) developed the next day. From the 35th hospital day, 500 mg/100 mL metronidazole solution (Anaemetro, Pfizer, Tokyo) in a spray bottle was administered by spraying (3–4 pumps each time) around the tumour in the oral cavity after every meal. After starting the intervention, the malodour immediately improved (NRS, 1/10; odour score, 0 on the 42nd hospital day) without any adverse events, such as bleeding or pain. Thereafter, malodour control was maintained, and the patient was discharged to a nursing home on the 48th hospital day.
DISCUSSION
Metronidazole ointment or gel is commonly used to treat malodourous fungal wounds on the body surface. However, this medication is difficult to use in treating oral, nasal and airway lesions. To the best of our knowledge, there have been no studies on the use of topical metronidazole for treating malodour from oral malignant fungating wounds.

Spraying metronidazole has the following advantages. Spraying can be easily done over the lesions, and the medication can be repeatedly administered even though it may be washed away by saliva. The spraying treatment also avoids the discomfort brought by the texture of ointments or gels. In the present case, metronidazole spray was effective against malodour without any obvious adverse events. It also remained effective in maintaining control of malodour. The medication used in this study was 2.4–3.2 mg metronidazole per dose (3–4 sprays per dose using a spray bottle containing approximately 0.16 mL of 500 mg per 100 mL of intravenous metronidazole solution, 0.8–1.1 mg/cm² per unit area). This is approximately 1% of the amount applied in the phase III study of metronidazole gel (Roze, Maruho, Osaka) for malodour from breast cancer and is much lower than the systemic exposure dose of a single oral dose of 250 mg.

This case report has several limitations. As there is no internationally standardised evaluation tool for malodour, the validity of the evaluation method is unknown. The odour score, which is the odour evaluation method used in this case study, is based on those used in previous studies; moreover, several other evaluation methods have been proposed. Another limitation is the lack of quality of life assessment. As the present report was based on only one case, it is necessary to verify the validity of this treatment method through comparative studies. In addition, we could not determine the optimal dosing or frequency of metronidazole spray for controlling malodour.

CONCLUSION
In conclusion, spraying metronidazole via a spray bottle may be effective in the treatment of cancerous malodour from oral malignant fungating wounds. Additional clinical research is required to confirm this effectiveness.

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Ethics approval Following the ethical guidelines for human research of the Ministry of Health, Labor and Welfare in Japan, informed consent from the patients was waived due to case study. With respect to the patient's consent, the patient had already died. We contacted the patient's only family member, his sister and obtained her verbal consent for this report.

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