

A Case of External Dental Fistula Related to a Fixed Cantilever Bridge

Maki Mizuno¹, Toshihiko Hoashi¹, Akiko Hisano²,
Susumu Ichiyama¹, Yoko Funasaka¹ and Hidehisa Saeki¹

¹Department of Dermatology, Nippon Medical School, Tokyo, Japan

²Department of Stomatology, Nippon Medical School, Tokyo, Japan

An external dental fistula is a skin manifestation caused by an underlying dental problem. We report a rare case of external dental fistula associated with a fixed cantilever denture. A 77-year-old Japanese woman presented with an enlarging reddish granulomatous lesion on her right cheek that was diagnosed as an external dental fistula. A fixed cantilever denture had initially been attached to her upper jaw with her seven bona fide teeth. However, six teeth were completely lost and the denture was attached to only one tooth, which showed apical periodontitis. Subsequently, the external dental fistula developed. We should keep in mind that a patient with a fixed cantilever denture can suffer from apical periodontitis and a subsequent external dental fistula due to a failure to maintain appropriate oral hygiene.

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Introduction

An external dental fistula results from a suppurative inflammatory process located in the periapical tissue that communicates with the exterior skin through a suppurating channel¹. Here we present a rare case of an external dental fistula related to a fixed cantilever bridge.

Case Report

A 77-year-old Japanese woman had been aware of a slowly enlarging reddish nodule on her right cheek for four years. She was referred to our hospital with suspicion of squamous cell carcinoma. There was a ϕ 15 mm reddish granulomatous nodule whose center was depressed on the right cheek (**Fig. 1A**). When we inserted a probe, we observed a fistula in the direction of the maxillary alveolar. We tried to observe the fistula from the oral cavity, but could not. A fixed denture was inserted into the upper jaw and no dental caries were found at that time. Computed tomography (CT) revealed soft tissue swelling and increasing concentrations of fat interspersed in the soft tissue over the right lower jaw from the right cheek (**Fig. 1B**). Histopathologically, edema and infiltration of inflammatory cells were found in all layers of the

dermis, in which the blood vessels were dilated and increased (data not shown). We diagnosed the lesion as an external dental fistula. The denture of the upper jaw was easily removed accompanying with her bona fide tooth (**Fig. 1C and D**), though it should be a fixed denture, so called a fixed cantilever bridge by nature (**Fig. 1E**). After the removal of the denture, the lesion on the right cheek gradually regressed.

Discussion

A cantilever fixed partial denture (fixed cantilever bridge) is defined as a fixed restoration that has one or more abutments at one end while the other end is unsupported². Initially, seven of our patient's bona fide teeth were permanently connected to the denture device in this case (**Fig. 1F**). Fixed partial dentures frequently have biological complications such as caries and loss of pulp vitality³. Six of the seven abutment teeth had completely dissolved possibly due to dental caries over the course of 30 years (**Fig. 1G**). The alveolar bones of the upper jaw had also dissolved probably due to dental caries of the one remaining tooth (**Fig. 1D and E**).

An external dental fistula results from a suppurative

Correspondence to Toshihiko Hoashi, MD, PhD, Department of Dermatology, Nippon Medical School, 1-1-5 Sendagi, Bunkyo-ku, Tokyo 113-8603, Japan

E-mail: thoashi-tky@umin.ac.jp

Journal Website (<http://www2.nms.ac.jp/jnms/>)

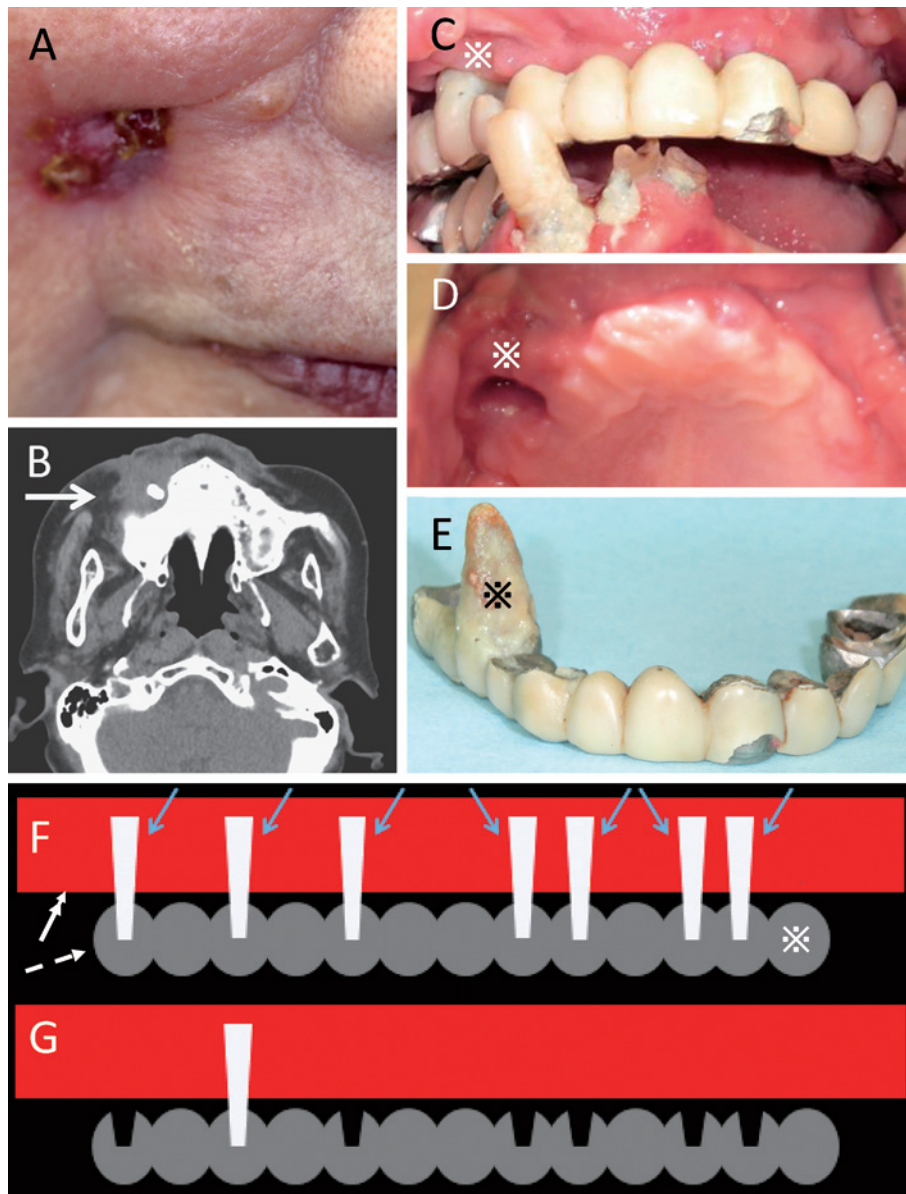


Fig. 1 Clinical and radiological features of external dental fistula.

- (A) There was a $\Phi 15$ mm reddish granulomatous nodule with a depressed center on the right cheek.
- (B) CT indicated inflammation of the soft tissue (**arrow**).
- (C) Image of the oral cavity prior to the removal of the denture. The denture was connected to the upper jaw by only one bona fide tooth (**asterisk**).
- (D) Image of the oral cavity after the removal of the denture. The hole in which the tooth root was conspicuous (**asterisk**).
- (E) Observation of the removed denture. The remaining bona fide tooth root was firmly linked to the denture device (**asterisk**).
- (F) Schematic diagram of the initial denture before the bona fide teeth dissolved (**arrow**: bona fide teeth, **dashed arrow**: the cantilever fixed partial denture, **double arrow**: upper jaw, **asterisk**: the free end).
- (G) Schematic diagram of the denture after six bona fide teeth had dissolved. The remaining one bona fide tooth root was firmly linked to the denture.

inflammatory process located in the periapical tissue that communicates with the exterior skin through a suppurat-

ing channel¹. Apical periodontitis is a chronic inflammatory disorder of periapical tissue. The following three

major causes are proposed^{4,5}: mechanical or chemical irritation, dental caries reaching the pulp and periapical tissues, and bacterial invasion of the gingival and periodontal tissues^{4,5}. Taking these possible causes into account, we hypothesized the following pathophysiological mechanisms in this case. Six out of the seven abutment teeth had been lost, probably due to dental caries (**Fig. 1F and G**), and the bite force was concentrated mechanically on the remaining one abutment tooth (**Fig. 1G**). In addition, a failure to maintain appropriate oral hygiene led to bacterial infection of the gingival margin. Apical periodontitis had occurred as a result of these two causes, and the external teeth fistula occurred subsequently. We should keep in mind that a patient with a fixed cantilever denture can suffer from apical periodontitis and a subsequent external dental fistula.

Conflict of Interest: None.

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