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Oral carcinoma associated with implant-supported overdenture trauma: a case report

CASE REPORT

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Abstract – With the advent of predictable implant support and retention, the implant-supported overdenture (IOD) has become an accepted treatment modality, but some complications could be observed. We present a case report of squamous cell carcinoma developed in an edentulous ridge in relation to bar retaining IOD chronic trauma, in a patient with no history of previous oral cancer. To our knowledge, this is the first case described in the literature and suggests that primary malignancy can appear as a chronic traumatic ulcer and that a high degree of vigilance is required in the follow up of these patients.

With the advent of predictable implant support and retention, the implant-supported overdenture (IOD) has become an accepted treatment modality. Despite the positive aspects of IOD treatment, some complications have been observed (1). The most common complications with mandibular IODs are broken, loose or lost retainers. Further complications were observed with bar-retained IODs as opposed to ball-retained IODs and more complications associated with cantilevered vs non-cantilevered bar-retained IODs. An important problem may be the chronic mucosal trauma caused by the distal extension of a cantilevered bar. We present a case report of squamous cell carcinoma developed in an edentulous ridge in relation to bar retaining IOD chronic trauma, in a patient with no history of previous oral cancer. To our knowledge, this is the first case described in the literature. In any case, a single case report cannot establish a relationship between oral carcinoma and IOD.

Case report

A 70-year-old female patient presented in 2006 to the University Central Hospital, Oviedo, Spain, reporting a painful ulcer in the left mandibular alveolar ridge for 1 month (Fig. 1a). The patient presented with a three-implant-supported milled connecting bar with left posterior cantilever, supporting a mandibular overdenture (Fig. 1b). The original prosthesis and mandibular implants were placed 10 years previously when the patient was living in another country and had functioned appropriately during that time. The patient had no history of smoking or alcohol consumption, reported no allergies and had no relevant medical history or treatments. Clinically, it was noted that the left distal extension of the bar supporting the implant-supported mandibular overdenture prosthesis was traumatizing on the left alveolar ridge. The presence of a suspicious ulcerous lesion on the mentioned region prompted a biopsy. Microscopic examination revealed a moderately well-differentiated squamous cell carcinoma. The bar was removed immediately (Fig. 2a). The area of soft tissue was resected under general anaesthesia, associated with a marginal mandibular resection including left implant (Fig. 2b). We also prophylactically placed a reconstruction plate on the inferior border of the mandible. A left supraomohyoid neck dissection was made and the histopathological study revealed no metastases in any of the cervical nodes. No cancer cells could be confirmed on the resection margins of the mandible or soft tissues by histopathological examination of the resected specimen. No evidence of local or cervical recurrence was observed after 1 year of exhaustive follow-up.

Discussion

The high success rate of titanium osseointegrated implants used to support mandibular overdentures is well documented with longitudinal studies up to 12 years (2). However, these studies did not include cantilevered anchorage systems, which can injure the subjacent alveolar mucosa. Chronic traumatic ulcer (CTU) of the oral cavity is a relatively frequent lesion caused by constant, mild traumatisms inflicted by carious or fractured teeth or maladapted restorations or prosthesis. It has been suggested that if CTU is not treated adequately, it may behave as a precancerous lesion. If oral mucosa were previously initiated by carcinogens, a promoter action by the

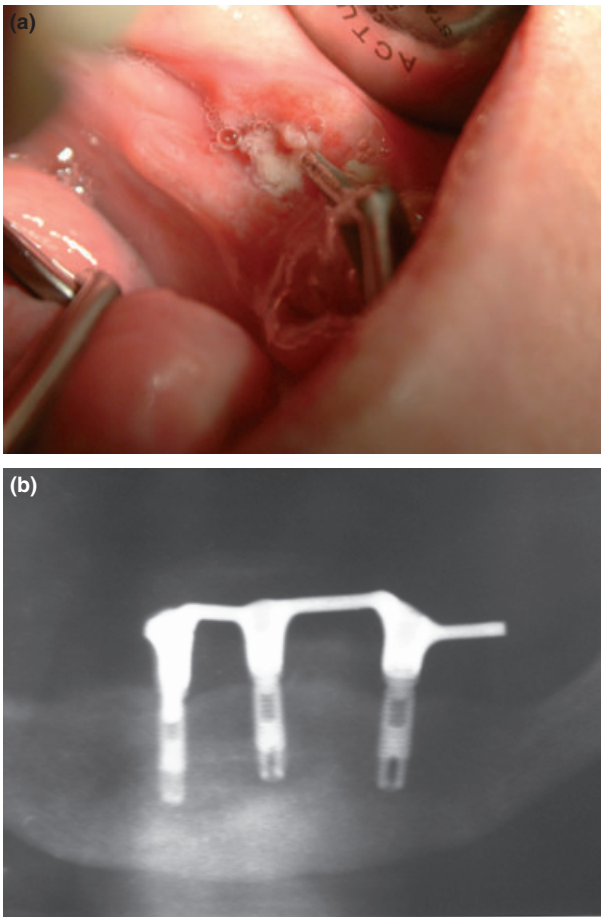

Fig. 1. (a) – Image of the ulcerous lesion and distal extension of the cantilevered bar. (b) – Panoramic radiograph showing a three-implant-supported milled connecting bar with left posterior cantilever.

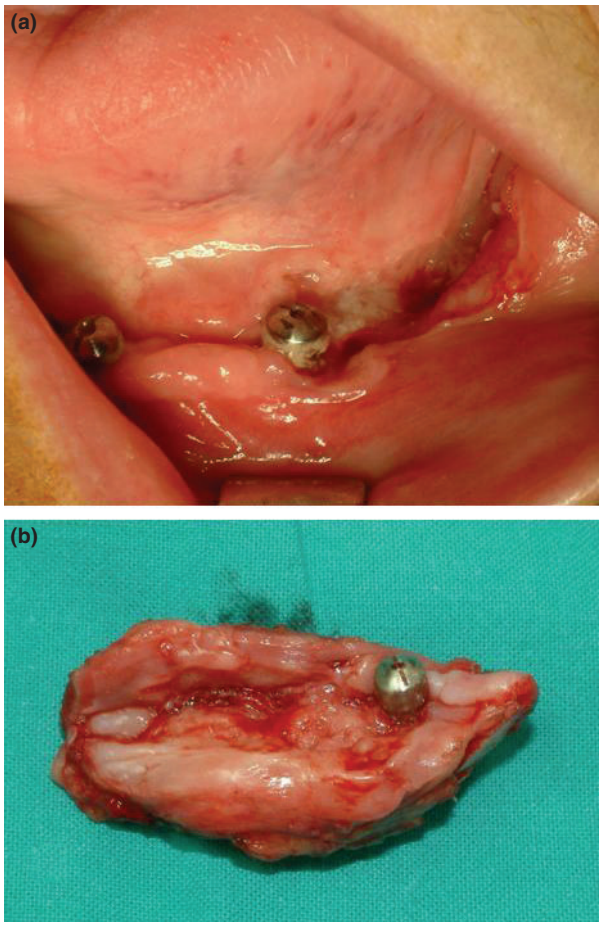

Fig. 2. (a) – Preoperative intraoral view. The ulcerative lesion was shown in the left alveolar ridge and the bar has been previously removed. (b) – Marginal mandibular resection including the tumour and left implant.

granulation tissue of CTU has been suggested. This granulation tissue induces epithelial proliferation and healing is prevented by constant irritation. Carcinogens act on large areas of the mouth causing the phenomenon known as field cancerization (3).

It appears that patient mediated factors such as retention, jaw morphology and financial considerations should dictate the number of implants and design of the mandibular implant overdenture prosthesis. However, this case report highlights the importance of avoiding chronic mucosal traumatism caused by prosthesis. This case suggests that primary malignancy can appear as a CTU and that a high degree of vigilance is required in the follow up of these patients. Fixed prostheses and overdentures should be regularly removed, especially in patients who have had previous dysplastic field changes (4, 5). Several factors have to be considered: previous history of oral carcinoma, oral lichen, poor oral hygiene and all the factors that contributes to raise the risk of oral carcinoma. In our patient, none of these factors was present, but a traumatism caused by the cantilevered extension of the bar.

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