Amalgam tattoo - A case report

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ABSTRACT
Amalgam Tattoo is an iatrogenic entity defined as a bluish black or grey lesion of the oral mucous membrane caused by accidental implantation of silver amalgam into the tissue during tooth restoration or extraction.

According to Stedman’s medical dictionary 2nd edition Amalgam Tattoo is defined as “A bluish black or grey lesion of the oral mucous membrane caused by accidental implantation of silver amalgam into the tissue during tooth restoration or extraction.”

A 35 year old male patient reported to the Department of Conservative Dentistry & Endodontics with the complaint of discoloration of upper front tooth since 5-6 years. On examination tooth was found non vital and there was blackish discoloration of attached gingiva in relation to the same tooth, measuring around 0.5 x 0.5 cm in diameter with pus discharge in relation to the same. A periodontal pocket measuring 7 mm was present in relation to mesial surface of 11.

Radiographically a radiopacity was observed in relation to apex of 11 suggestive of retrograde filling. Radiolucency was also seen around this suggestive of periapical abscess. Empty pulp canal space and an intact palatal surface was seen in relation to 11 indicating that no root canal treatment was done. Regenerative procedures were carried out along with Periapical Curettage and Root end resection. This is an iatrogenic case which is being handled by interdisciplinary approach.

The case was diagnosed as chronic periapical abscess with amalgam tattoo.

INTRODUCTION
The implantation of dental materials into mildly injured or periodontally inflamed mucosal tissues during the restoration of carious teeth is not an unusual event. The material most likely to present as a mucosal discoloration is amalgam from the “silver fillings,” hence, the lesion is usually called an amalgam tattoo, but other metals may produce the same effect. Most of the time these “biocompatible” materials do not elicit a local inflammatory response, but occasional cases are associated with chronic inflammatory changes compatible with a foreign body reaction. Amalgam is a combination of mercury, silver, tin, copper and, sometimes, zinc. The mercury usually comprises half of the mixture and rarely produces an obvious tissue necrosis despite its rather high level of toxicity in other settings. Overall, amalgam tattoo is found in approximately 1 per 1,000 adults.

SOURCES OF AMALGAM TATTOO
- Amalgam scattered in the surgical site during placement or removal
- Fractured or loosened amalgam root end fillings
• Chemical or electrochemical corrosion
• Silver scattered during root resection
• Deterioration of silver containing root canal sealers.

Amalgam tattoo presents as a soft, painless, nonulcerated, blue/grey/black macule with no surrounding erythematous reaction. It is most frequently found on the gingival or alveolar mucosa, but also can be seen on the buccal mucosa. No anatomic site is immune from this change, even the bone has shown incidences of amalgam tattoo when contaminated.

The tattoo is only moderately demarcated from the surrounding mucosa and is usually less than 0.5 cm in diameter. Lesions with larger particles will be visible on routine dental radiographs. Lesions enlarge by macrophagocytic migration which phagocyte the amalgam particles and tend to take it away from the site.

CASE

A 35 year old male patient reported to the Department of Conservative Dentistry & Endodontics with the complaint of discoloration of upper front tooth since 5-6 years. There was history of trauma in relation to same tooth 5-6 years ago and history of pus discharge in relation to same tooth since about 2-3 years. Patient had no symptoms of pain. Patient had visited a dentist 2-3 months after trauma due to swelling in relation to the same tooth and a root end amalgam filling was done without any root canal therapy.

On examination grayish black discoloration about 0.5 cm in diameter was seen at the mucobuccal fold in relation to 11. A sinus tract pus discharge was present in relation to 11. A periodontal pocket measuring 7 mm was present on mesial aspect of 11.

Discoloration and extrusion of 11 was seen. There was no mobility of 11 noted. An intact palatal surface was seen in relation to 11 indicating that no root canal treatment was done.

Electronic Pulp Testing and Heat & Cold pulp tests were performed and pulpal status was found to be non vital.

On radiographic examination a radiopacity was seen in relation to the apex of the upper right central incisor indicative of a root end filling material. In addition a radiolucency approx 3-4 mm in diameter was seen at the apex of 11 with ill defined hazy borders suggestive of a periapical abscess. It was noted that the pulp space was empty and it suggested that root canal therapy was not carried out.
The case was provisionally diagnosed as Chronic Periapical Abscess with Amalgam Tattoo.

A multivisit Root Canal Treatment was carried out to obtain a dry root canal followed by obturation using lateral condensation technique, which was followed by surgical correction.

A mucoperiosteal conventional flap was raised from distal surface of 13 to the mesial surface of 22 for the combined purpose of gaining access to the periapical area and elimination of the periodontal pocket.

Periapical Curettage was carried out to remove the granulation tissue and scattered amalgam particles present in the periapical, Root end resection was performed and Root end Filling was done using MTA to achieve adequate apical seal.

Labial cortical plate was resorbed, and after the Root end resection the remaining root length was short, thus periodontal regenerative procedure using a bone graft and membrane was employed for regeneration of labial cortical plate and filling of defect present in the periapical region.

A resorbable Type I collagen with Osseograft™ (Xenogenic Demineralised Bone Matrix) were used.
Sutures placed using resorbable suture material

One week post-operative

Healing gingival without any signs of infection or other complication was observed with presence of slight inflammation present in relation to 21.

Two weeks postoperative

Radiographs comparing pre-operative and post-operative images. Note the well developed apical seal.

Three weeks post operative

Reduction in intensity of amalgam tattoo can be observed which will eventually disappear in a period of 2 – 3 months.

Four months post operative

DISCUSSION

The amalgam tattoo is a benign discoloration of the mouth membrane resulting from amalgam particles falling into small, open wounds created during dental treatment or by trauma shortly after a dental treatment. Foreign particles may be large enough to be seen on x-rays and occasionally the tattoo is seen to expand over time as inflammatory cells beneath the membrane try to “clean up” the area. An Interdisciplinary approach was employed for the treatment of this case as there was periapical bone loss along with the destruction of attachment.
apparatus and reduced alveolar bone support (resorbed labial cortical plate) and reduced crown root ratio after first Root end resection, necessitating periodontal regenerative procedures for better long term prognosis of tooth.

CONCLUSION

The rapidly changing face of dentistry today presents us with new developments and techniques providing an ever expanding armamentarium to help us meet the challenges presented to us in the dental profession. An inter-disciplinary approach, sound knowledge and awareness of new material are essential, if we are to strive for optimal function and aesthetic harmony with long term predictability.

References

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