In this study a reduction in recovery of at least 4 log₁₀ was demonstrated for some of the leukaemia unit isolates and most of the renal unit isolates on 50 mg/l neomycin agar compared with blood agar. This difference was attributable to differing susceptibility to neomycin. Neomycin blood agar has been used by other authors for the detection of vancomycin resistant enterococci,³ but the concentration of antibiotic used was not specified. It is clear that we may have missed faecal colonisation in some of our patients, at least in those on the renal unit. This has obvious implications for the control of infection, as strict application of barrier precautions for colonised patients may be necessary to limit an outbreak due to vancomycin resistant enterococci.^{4,5}

Several approaches are possible to improve the detection of faecal carriage of these organisms. Firstly, we have reduced the concentration of neomycin in our medium and this will be evaluated. Secondly, alternative selective media could be used such as cephalixin-aztreonam-arabinose agar⁶ or campylobacter blood agar.⁷ Thirdly, an enrichment phase could be used to maximise the inoculum onto

a selective agar. Whichever approach is used, careful assessment of antibiotic concentrations will be required, together with a full evaluation of results. If we had relied on the NCTC *E faecalis* (MIC 64 mg/l) for quality control of our media, we could have assumed, wrongly, that other enterococci would have been adequately recovered. As vancomycin resistant enterococci become more prevalent nosocomial pathogens, comparative studies of screening media are urgently needed.

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Gold granuloma after accidental implantation

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Abstract

A case, in a 66 year old man, of a florid granulomatous reaction to gold dental alloy presenting about 20 years after accidental implantation in the oral mucosa of the lip is reported. Subsequent energy dispersive analysis confirmed the presence of a high nobility gold dental alloy. Florid granulomatosis has only rarely been reported in association with gold. Possible explanations for the delay in presentation include alteration of immune status or the development of hypersensitivity with components of the gold dental alloy acting as haptens.

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Keywords: Gold dental alloy, florid granulomatosis, oral mucosa.

Gold has been widely used as a dental restorative material, largely because of its inert biological nature. Gold deposition has been reported in a variety of sites, usually as a result

of chrysotherapy. Cox *et al*¹ and Keen *et al*² have reported cases of gold deposition in the dermis following chrysotherapy. Landas *et al*³ have described gold deposition in the liver in rheumatoid arthritis. However, gold is an uncommon finding in oral lesions. Levison *et al*⁴ analysed particulate matter from 222 oral lesions and gold was identified in one case only. Experimental studies carried out by Matsui *et al*⁵ and Nagem-Filho *et al*⁶ showed that subcutaneous implantation of gold (24 K) and gold alloy in rats caused only a mild tissue reaction compared with other dental restorative materials, inducing relatively few inflammatory cells.

Case report

A fit and otherwise healthy 66 year old man presented with an 18 month history of painless oral swellings. Examination showed three pale mucosal nodules on the inner aspect of the right upper lip and both sides of the inner lower lip, each measuring approximately 1 cm in diameter. An incisional biopsy of one lesion was

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Figure 1 Granuloma formation with black particulate material in multinucleate giant cells.

Figure 2 A typical particle seen under scanning electron microscopy.

carried out under local anaesthetic. After histopathological assessment and energy dispersive analysis, the patient was reviewed and further questioning revealed that the dental work had been carried out about 20 years before.

PATHOLOGICAL FINDINGS

The biopsy specimen was routinely fixed in 10% formal saline and embedded in paraffin wax. Sections were cut and stained with haematoxylin and eosin. Histological examination revealed multiple discrete granulomas within the oral mucosa surrounded by stromal fibrosis and a lymphocytic infiltrate. Particles of black refractile material were identified within macrophages, enclosed by multinucleate giant cells or surrounded by fibrous tissue in the stroma (fig 1).

Electron microscopic analysis showed irregular particles measuring 10 to 40 µm surrounded by a rim of fibrous tissue within the stroma (fig 2) or within macrophages. Some particles had a rim of calcium salts.

Energy dispersive analysis of a typical particle was carried out. A 10 µm section containing the particulate matter was coated with carbon and placed in a Philips 501 scanning electron microscope. The particulate matter was then subjected to energy dispersive analysis at 30 kV for periods of 100 seconds. A typical particle was composed of gold (84.154%) with small amounts of copper (8.938%), silver (5.810%), and iron (0.33%). These figures were similar to a routinely used high nobility gold dental alloy (Argenco 10). Peaks for silicon, calcium and magnesium related to the presence of these elements in the glass microscope slide. The presence of iron may reflect the result of haemorrhage within the tissue dating from the time of implantation.

Discussion

Granulomatous inflammation is a distinctive reaction by tissue to irritant undegradable material. A florid reaction to gold or high nobility gold alloy such as that seen in this case is unusual. Most experimental and clinical evidence suggests that the tissue response to gold alloy is mild, reflecting its inert biological nature. Of the nine cases reported by Keen *et al.*,² only one had a granulomatous reaction to the deposited gold. More common reactions to gold in the dermis include a non-specific eczematous or urticarial reaction, plaques resembling lichen planus and pityriasis rosea.⁷ A florid granulomatous contact dermatitis to gold earrings (18 K) has also been reported,⁸ where the granulomas were accompanied by intracytoplasmic crystalline inclusions within macrophages and lymphocytes. This feature was not identified in our case, although asteroid bodies, a histologically non-specific finding, were seen within many multinucleate giant cells.

Finally, an interesting observation in our case was the prolonged length of time between presentation and the original dental work. Possible explanations include alteration of the host immune status, or the development of hypersensitivity with components of the gold dental alloy acting as haptens.

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