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What do they do with their metalwork? What patients do with orthopaedic implants given to them after surgery

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KEYWORDS

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Summary Removal of metalwork is one of the commonest orthopaedic elective procedures with patients often requesting to keep their implants. Five hundred consecutive patients who had removal of their orthopaedic implant between April 1994 and March 2000 were contacted by post. Three hundred and seventy-two responded (response rate 74%). Two hundred and thirty-nine patients (64%) had metalwork extracted from their lower limb, whilst one hundred and thirty-three (36%) had metalwork extracted from their upper limb.

Sixty-one patients (17%) had kept their metalwork upon being contacted. Of the sixty-one patients, 10 (16%) had used their implant for functional use, 22 (36%) had stored theirs and 29 (48%) did not know what had happened to theirs.

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Introduction

No general agreement exists concerning the indications for removal of metallic implants, but symptoms including pain, implant prominence, infection, stress shielding with late fatigue, migration, malignant change, adverse effects on bone growth and failure of fracture fixation have all been reported in the literature.^{1–7} The operation for implant removal carries significant morbidity, with complications as high as 40% reported in certain publications.^{3,4,7} Although extensive literature exists reporting complications and reasons for implant removal, no study has investigated what happens to the metalwork once it has been removed.

Our department has no fixed policy to what happens to implants once removed. If the patient does request the prosthesis then every effort is

made to fulfil their wishes. If not requested the implant is disposed of.

This study investigated what happened to the implant once the patient had left hospital in possession of it.

Patients and methods

Five hundred consecutive patients who had their metalwork removed between April 1994 and March 2000 were contacted by letter (Fig. 1) and asked to fill in a questionnaire. Hospital notes of the group of patients who kept their implant were reviewed.

Results

A total of 372 patients responded to the postal questionnaire, a response rate of 74%. Two hundred and thirty-five were male (47%) and 265 were

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Figure 1 Humeral nail: removed 2 years following fixation of mid shaft humeral fracture due to proximal migration of the nail causing secondary impingement. It is now used as a bird seed net support.

female (53%). The average age of the patient was 52 years with a range from 17 to 83 years. Two hundred and thirty-nine had metalwork extracted from their lower limb (64%) whilst 133 (36%) from their upper limb. The main indications for metalwork extraction were pain in 76% of patients and implant prominence with skin irritation in 24% of patients.

Sixty one patients (17%) requested and received their implant post removal. Nearly half could not recall what happened to this implant. Ten patients had put their implant to functional use. The (Figs. 1–10) illustrate this.

Of the remaining 51 patients who accepted their implants, 22 (36%) had stored it in a cupboard, box or drawer and the remaining 29 (48%) had no idea where their implant had been placed.



Figure 2 Clover plate: removed 9 months following ORIF of distal tibial fracture due to local skin irritation. It is now used as a tent peg.



Figure 3 Femoral component of a TKR: removed 7 years following insertion due to aseptic loosening. It is now used as a letter holder.

Discussion

Metalwork extraction is a commonly performed procedure with significant morbidity reported.^{1–3} Although there are numerous publications regarding complications, there is no literature as to the uses the implant is put to following removal.

Our study showed that the majority of patients undergoing implant removal made minimal efforts to obtain their metalwork. Some of the patients who did request theirs went to extraordinary lengths to utilise the implant, as shown by our series of photographs. This raises the question of who does the metalwork belong to and what legal implications does this have?

We contacted the defence organisations and also the Medical Devices Agency concerning the removal of metalwork. There are some general guidelines for the removal of implants—the biggest risk is that of contamination and obviously any potentially contaminated implant should not be released to the patient. There is a health notice released from the Department of Health and Social Security released in March 1983: HN (83) 6, which is apparently due for review. This document states that an implant becomes the property of the person in whom it is implanted and remains his or her property even if it is subsequently removed. However, there are separate paragraphs outlining the need for a revised

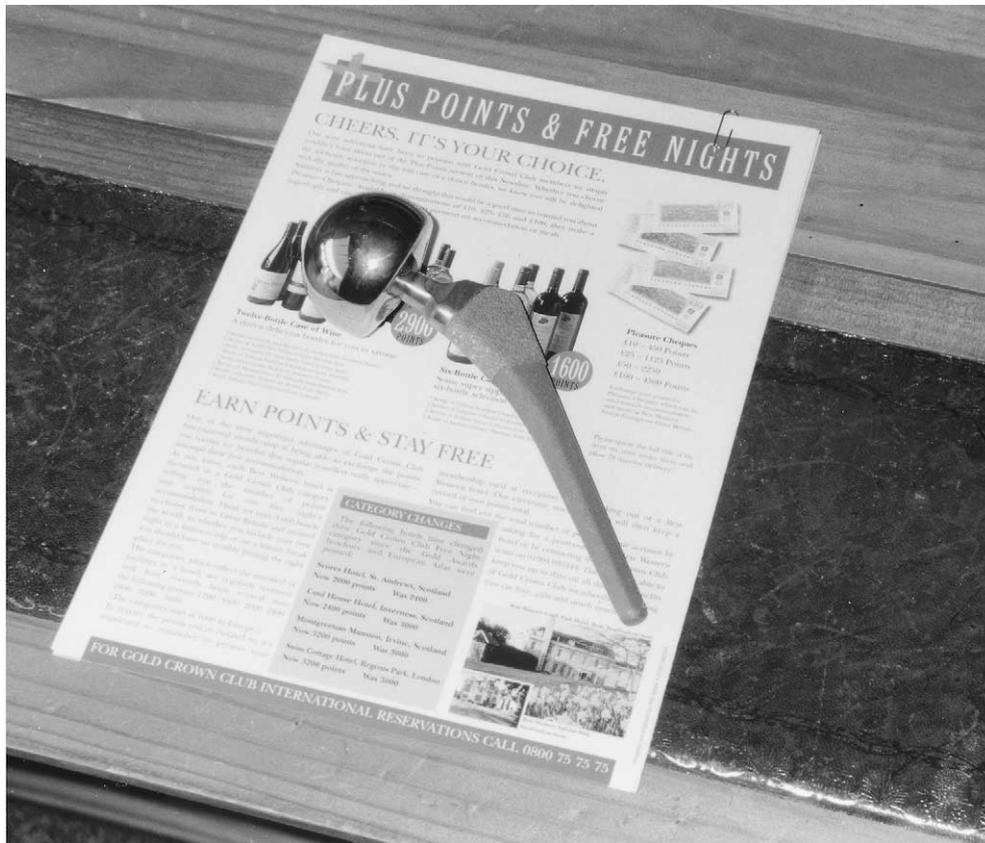


Figure 4 Hemiarthroplasty: removed 6 years following original surgery due to acetabular degeneration. It is now used as a paperweight.

consent form for operation, whereby one can state that the implant may remain the property of the health authority. This would allow an implant to be sent off to the manufacturers, for example to check

for evidence of wear or failure. It is apparent that there are no current guidelines on the disposal of implants after removal. It would appear that the discussion about what happens to the implant



Figure 5 Acetabular component of a THR: removed 4 years post insertion due to loosening. It is now used as an ash tray.

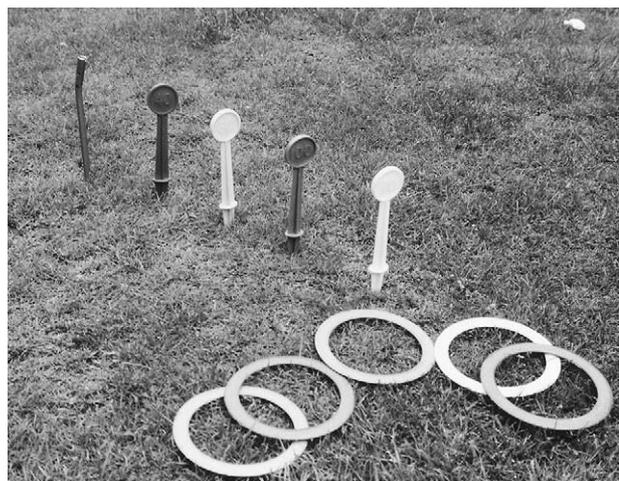


Figure 6 Femoral nail: removed 18 months following fracture fixation. It is now used as a target for a "ring" game.



Figure 7 A 6.5 mm partially threaded screw: removed following conversion of a DHS to a THR. It is now used as a hook for a fish slice.

should be made with the patient prior to surgery and whilst there is obviously no objection to giving the implant to the patient, provided it is not an infection risk, there may well be circumstances when the consultant may like to keep the implant for other investigations. If this is the case this should be discussed with the patient prior to surgery. There has been recent notice from the Medical Device



Figure 8 Third tubular plate: removed from distal fibula due to local skin irritation from screw heads. It is now used as a hook to keep a dart board in position.

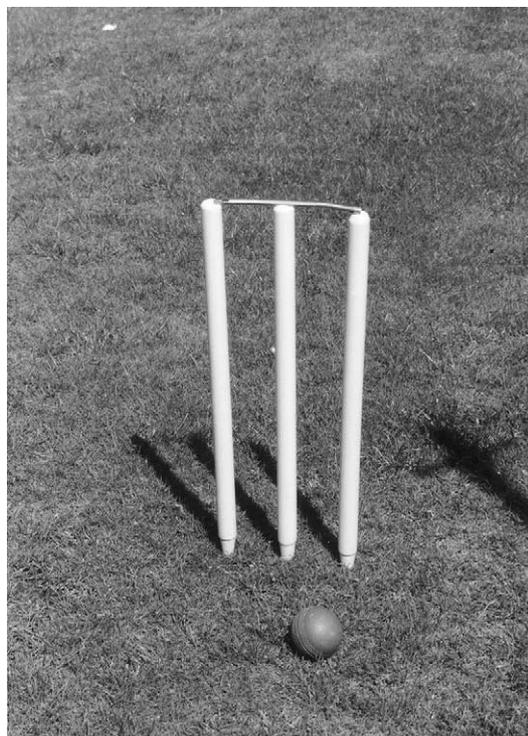


Figure 9 Tibial nail: removed 16 months following surgery due to prominent proximal portion of nail causing localised pain. It is now used as a set of bails.

Agency and their message is clear—that single use devices must not be reused.

Our study shows that the majority of patients do not request their metalwork and if they do keep it very few use the implant for a functional purpose.

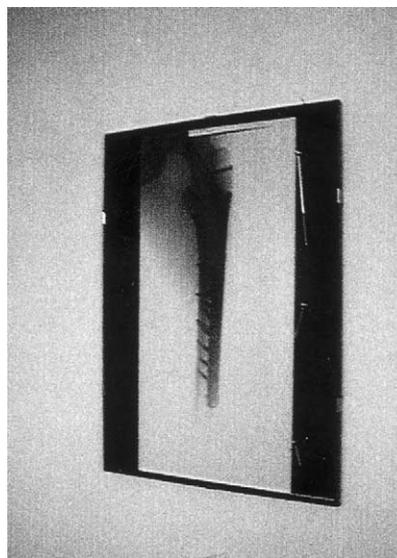


Figure 10 Plate and screws with X-ray: removed 12 years following original surgery to allow conversion to a THR. It is now used as a decorative, topic of conversation picture in their cloak room.

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