

Department of Orthopaedics, St. Radboud Ziekenhuis, Catholic University,
Nijmegen, The Netherlands.

EXTRACTION SET

A Method for Removing Acrylic Cement from the Medullary Cavity

T. J. J. H. SLOOFF & K. LINDNER

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The cementing of endoprotheses has become a generally accepted procedure in surgery of the hip (Chapchal 1972). With the increasing frequency of these allo-arthroplastic interventions, loosening of the prosthesis is an increasingly observed complication (Bonnin 1972, Wilson et al. 1972).

Total extraction of the loosened implant is the only correct treatment in these cases, and removal of the acetabular component with the cement usually poses no problems. However, the situation is different for the femoral component, whose cement coat does not traverse the medullary cavity at all levels because the internal shape and diameter of this cavity are not the same at all levels.

The literature comprises few data on the technique of extraction in these cases. The ultimate objective is a Girdlestone operation. It is advised that, for removal of the acrylic cement from the medullary cavity of the proximal femur, a bone chip should be chiselled from the cortical wall (Buchholz 1972).

We have devised a method of extraction of the acrylic cement which leaves the cortical wall intact and simplifies the operative procedure. Given a homogenous, unfragmented cement coat, the subtrochanteric cement can be extracted in its totality with a set of instruments developed for this purpose (Figure 1).

The set consists of: three self-tapping rods of increasing diameter, a universal hand-piece, three long drills matching the self-tapping rods, one awl, one slotted hammer and three sharp Charnley-type spoons. A detailed view of the heads of the self-tapping rods and drills is presented in Figure 2.

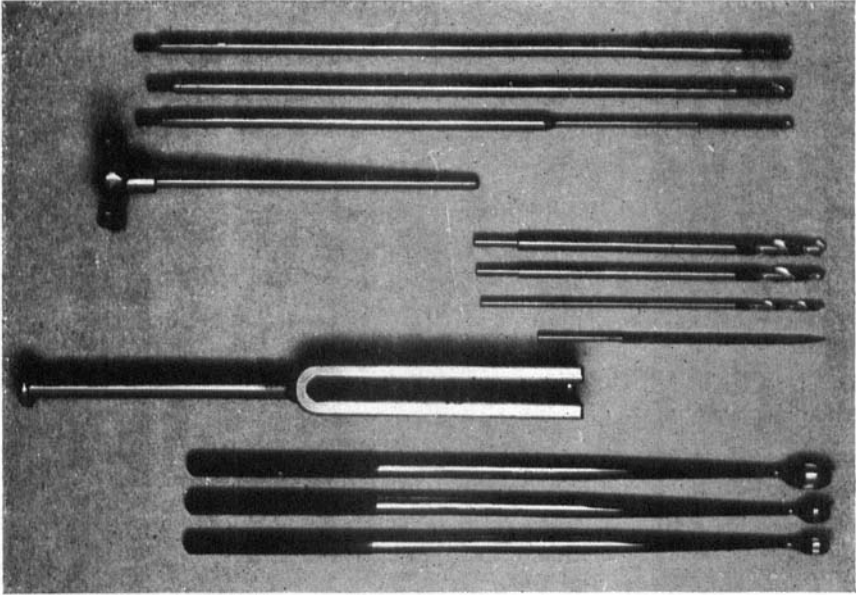


Figure 1. The extraction set.

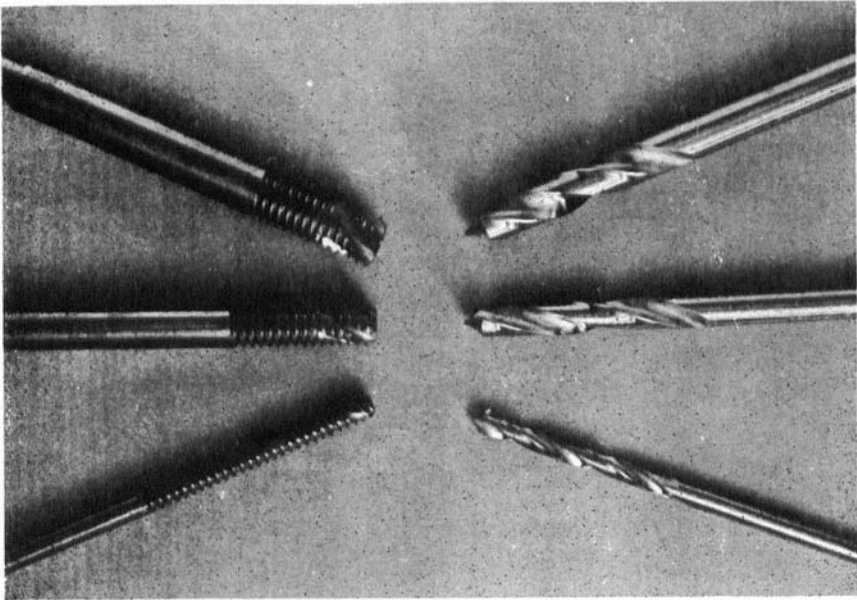


Figure 2. Detail of the self-tapping rods and drills.

DESCRIPTION OF THE OPERATIVE TECHNIQUE

The approach to the hip is made preferably through a postero-lateral incision according to Gibson-Kocher. The often markedly thickened capsular regenerate is excised in its totality so that luxation of the head-neck prosthesis becomes possible. The latter can be knocked loose from the cement coat by a few short, hard blows on a punch. If necessary, the acetabular prosthesis with the attached cement can then be removed from the acetabulum.

The femur should be so presented that one can look into the tract of the prosthesis stem. All visible cement (mostly attached to the trochanter) should be removed with the aid of a chisel or osteotome, particularly cement localized in the shoulder of the femoral neck (see cross-hatched leaf osteotome in Figure 3).

Only after removal of this cement can a guide-wire be passed straight into the medullary cavity along its axis (see dotted line in Figure 3: right position), and the bottom of the cement coat can be seen. The awl is used to perforate the bottom (cooling is required), whereupon the drills are carefully used to increase the bore of the stem tract. The choice of drills depends on the type of prosthesis and the thickness of

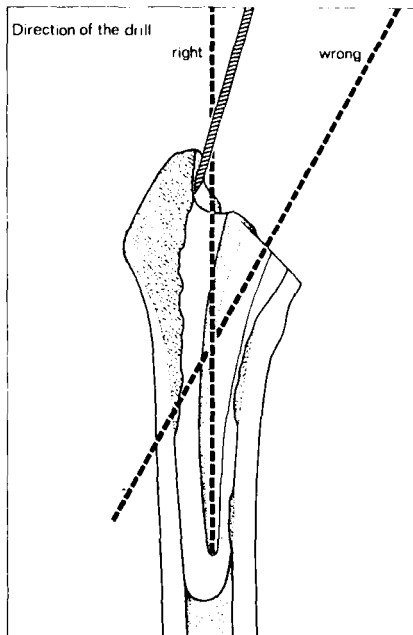


Figure 3. Position for osteotome and drill.

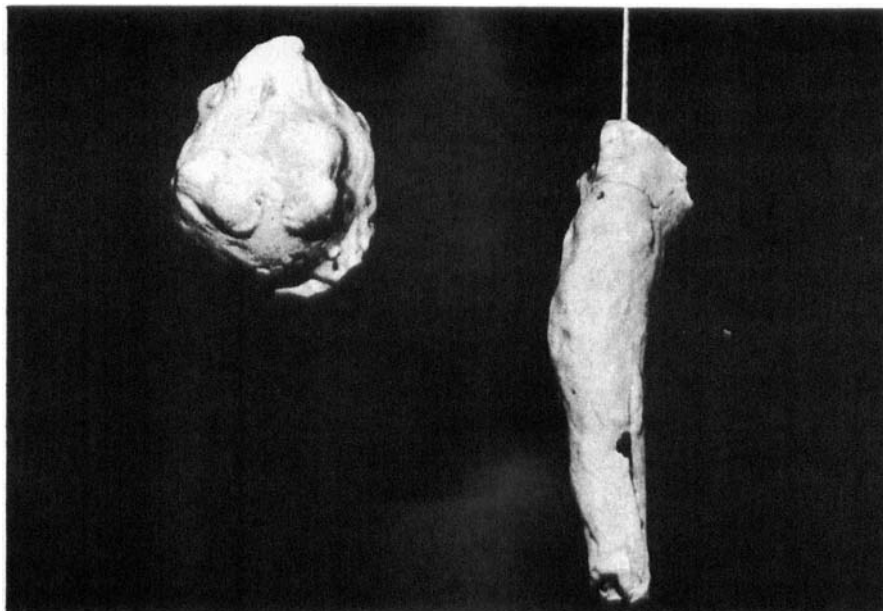


Figure 4. Acetabular and extracted femoral cement mass.

the cement coat. Next, the universal hand-piece is used to insert the matching metal rod which at its tip is self-tapping and further up has a normal, broad thread. Once the rod is sufficiently deep and tight, the implant can be extracted in its totality by short, strong blows of the slotted hammer (Figure 4).

If necessary, detached cement fragments and the lard-like layer of connective tissue which has often formed between the cement and the cortical wall, can be removed with the aid of the sharp spoons.

In problematic cases, in which the cement has been normally implanted in the medullary cavity whereas the prosthesis has been introduced by a *fausse route*, all extrafemoral cement can be chiselled off, whereupon the bore of the medullary cavity is increased and the cement removed following the above-mentioned method.

SUMMARY

This paper describes a set of instruments for extraction of acrylic cement from the medullary cavity of the proximal femur in cases of loosened cemented endoprostheses.

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Correspondence to:

Dr. T. J. J. H. Slooff
Orthopaedic Clinic, Katholieke Universiteit, St. Radboud Ziekenhuis
Nijmegen, The Netherlands