TOTAL HIP REPLACEMENT

Dr. G. A. ROSSET
M.B., B.Ch. (Witwatersrand), F.R.C.S. (Edin.),
Consulting Orthopaedic Surgeon, Medical School,
University of Witwatersrand and General Hospital,
Johannesburg.

Degenerative arthritis of the hip joint, from whatever
cause, is treated conservatively during the initial phases
of the disease. The principles of treatment are to
diminishing joint loading, improve stability and range of
movement and medication to lessen pain and the co-
existent synovitis.

Reconstruction of the hip joint is recommended when
pain, stiffness, swelling and deformity lead to decreasing
functional ability. Clinically, joint destruction is accom-
panied by loss of stability and limitation of movement.

Today the most satisfactory form of reconstruction
is by total replacement of the hip joint. Numerous
designs are available but in the Orthopaedic Unit of
the Johannesburg Hospital preference is for the Charn-
ley type of low friction arthroplasty. This unit com-
prises a plastic (high density poly-ethylene) acetabular
cup articulating with a stainless steel femoral com-
ponent.

The operation, in the majority of cases, is reserved
for elderly people. Consequently the risks are increased,
necessitating particular care in pre-operative assessment
and post-operative rehabilitation. Particular attention
is paid to prevent complications such as deep vein
thrombosis, pulmonary embolism, chest infection and
heart failure.

Under general anaesthesia with the patient in the
supine position a lateral approach is employed. The
fascia lata is incised in the same plane, exposing the
greater trochanter.

The greater trochanter is osteotomised and mobilised
superiorly with the attached gluteus medius and short
external rotator muscles. The advantages of this step
are that: (a) it gives a particularly good view of the
hip joint and (b) it allows improvement of stability
subsequently as, at the conclusion of the operation the
trochanter is replaced more distally on the femur giving
a greater mechanical advantage to the abductor muscles.
A possible disadvantage is that firm bony union of the
trochanter takes approximately 12 weeks and detach-
ment during the rehabilitation period is a possibility.
In practice this is a rare occurrence.

The hip is dislocated by flexing, adducting and ex-
ternally rotating the leg. The head of the femur is
removed thus exposing the acetabulum in its entirety.
The acetabulum is prepared by deepening and expand-
ing its margins with special reamers. Any residual
cartilage is removed and key holes are drilled into the
bony pelvis. The cup is subsequently accurately
cemented into position. The importance of accurate
positioning cannot be over emphasised; the cup must
lie within the confines of the prepared acetabulum at
an angle of 45° to the horizontal plane and must be
neither ante or retroverted. Poor position of the cup
may lead to dislocation, instability and even loosening.

The femoral shaft is then reamed in order to accept
the femoral prosthesis. Prior to cementing the femoral
component into the shaft a trial reduction is performed
to assess the range of movement. Osteophytes which
may impede movement and act as fulcra which assist
dislocation are removed. The prosthesis is then
accurately cemented into position paying particular
attention to its position; no ante or retroversion being
permitted. The cementing substance used for both com-
ponents is poly methyl methacrylate which is basically
an acrylic cement. Residual cement is removed and the
new hip joint is now located.

The greater trochanter is re-attached to the shaft of
the femur, being securely fixed with horizontal and
vertical wires. The wound is closed in layers with
suction drainage. These are important features of the
operation not only to attain primary wound healing
but particularly to prevent wound dehiscence and
haematoma formation which are particularly prone to
turn septic. Infection would imply total failure of the
operation.

The patient is carefully transferred to his bed main-
taining the operated limb in abduction avoiding possible
dislocation.

Blood loss during the operation amounts to approxim-
ately 1 000 cc. and this is replaced intra operatively by
intra venous infusion. The operative time is kept to
a minimum, 60-80 minutes, in the knowledge that in-
fecion rates are increased in prolonged procedures.
Post operatively prophylactic intravenous antibiotics
are employed for 48 hours and sub anti-coagulant doses
of Heparin are administered for 5 days.

The importance of a good exposure is stressed, asso-
ciated with precise surgical technique, minimum operat-
ing time and above all attention to pre- and post-oper-
ative detail. Although the results of total hip replace-
ment are impressive there are still sufficient complica-
tions to suggest that the procedure should be reserved
for suitable patients. The operation should be done by
qualified surgeons and the care and rehabilitation of
such patients should be in the hands of nurses and
physiotherapists who have been adequately exposed to
the treatment of such cases.