



CASE REPORT

A new and stable implant in the treatment of the intracapsular hip fracture: A case report

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Accepted 15 October 2007

Introduction

A fit and healthy 55-year-old man crashed his racing bicycle against the side of a car and fell onto his left hip.

He sustained an intracapsular Garden 2 hip fracture which was initially treated nonoperatively, however the fracture displaced (Fig. 1A and B) and osteosynthesis was performed.

The sliding hip screw has been the gold standard in treating fractures of the hip, and has been the standard fixation of this fracture in our department.

There is a strong biological rationale supporting the sliding hip screw, it is a biomechanically stable construct, especially in older patients with osteopenia or osteoporosis. Meta-analysis provides indirect and direct evidence that a sliding

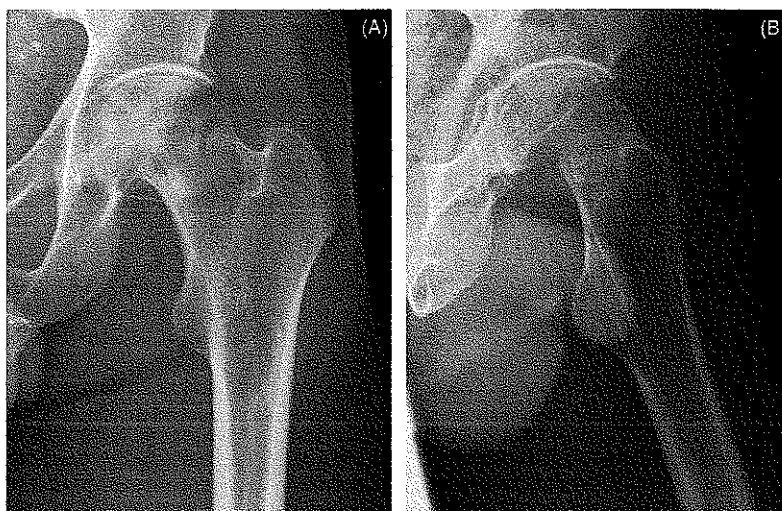


Figure 1 Intracapsular hip fracture, trauma X-ray. (A) AP view and (B) lateral view.

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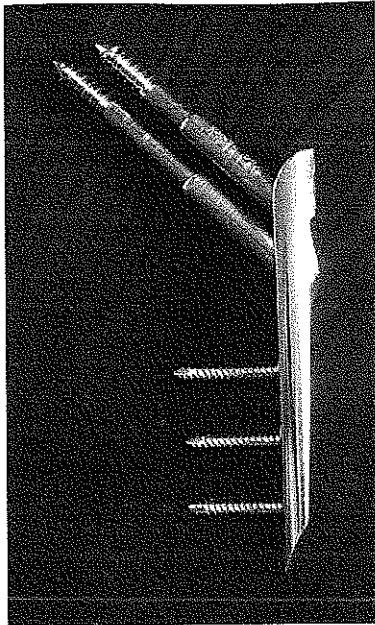


Figure 2 Gotfried's PerCutaneous Compression Screw (PCCP).

hip screw may reduce revision surgery rates, the evidence however remains far from definitive.⁵

Complications of internal fixation, especially SHS, include avascular necrosis of the femoral head (which may occur in up to 10% of patients),⁶ and early implant failure and non-union of the bone (which may occur in over 15% of patients). These complications, which require revision surgery, are associated with high morbidity and appreciable mortality.

Even patients who do not require revision surgery may have long-term functional limitation due to soft tissue damage at the time of surgery.

Hip fractures are associated with a 30% mortality rate at 1 year and profound temporary, and sometimes permanent, impairment of independence and quality of life.¹⁴

Furthermore, approximately 30% of surgically treated hip fractures require revision surgery. These revisions are associated with a large burden of morbidity and mortality.

The disability adjusted life-years lost as a result of hip fractures ranks in the top 10 of all cause disability globally.⁴

In our search for a more stable implant, we first performed a biomechanical analysis of the percutaneous compression plate and sliding hip screw in intracapsular hip fractures, in synthetic and cadaver bones. We compared the mechanical behaviour in intracapsular hip fractures of osteosynthesis with the PerCutaneous Compression Plate (PCCP; Fig. 2) versus the standard osteosynthesis, Sliding Hip Screw (SHS). In each group, the PCCP resisted a significantly higher load to failure than the SHS.³

The PCCP was developed by an Israeli orthopaedic surgeon, Y. Gotfried, for the treatment of the pertrochanteric hip fracture. It is a plate with angle stable neck screws which can be introduced by means of minimally invasive surgery.⁷

Clinically the PCCP has proven its value in prospective studies of (un)stable pertrochanteric hip fractures,^{1,2,8-13} however this is the first report on the usage of the PCCP in the treatment of an intracapsular hip fracture.

The fracture consolidation in this patient was uneventful, and he was mobilised full weight bearing from the first day after surgery, without any limitations.

Blood loss was minimal, the wounds (two small incisions of 2 cm each) healed without complications (Fig. 3A and B).

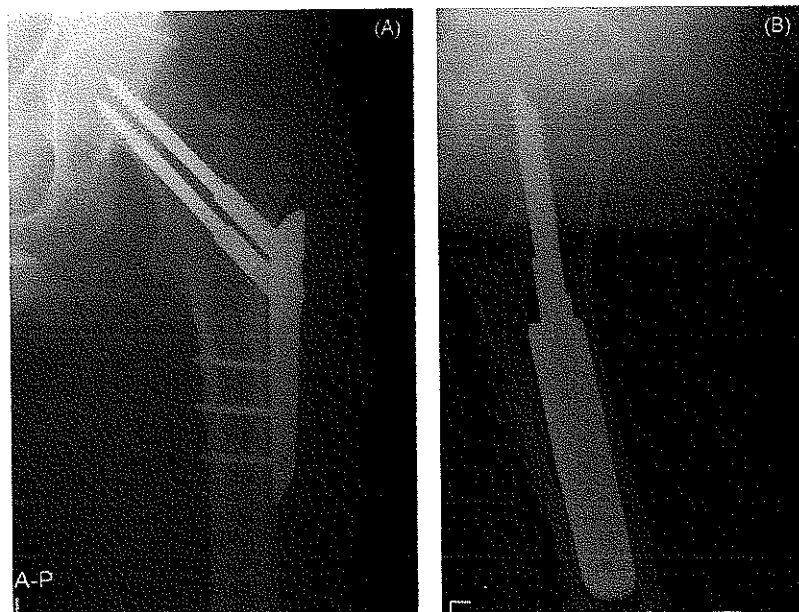


Figure 3 Postoperative X-ray with PCCP. (A) AP view and (B) lateral view.

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