

## Original Article

### **Stainless Steel 2.0-mm Locking Compression Plate Osteosynthesis System for the Fixation of Comminuted Hand Fractures in Asian Adults**

**應用 2.0 毫米不銹鋼鎖定加壓鋼板(LCP)骨接合系統以治療亞洲成年人手部粉碎性骨折的臨床經驗**

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#### **Abstract**

**Objective:** The aim of this retrospective study was to analyse the clinical outcome of the application of stainless steel 2.0-mm locking compression plate (LCP) system for the treatment of comminuted hand fractures in Asian adults.

**Methods:** Six patients who had comminuted hand fractures were treated by open reduction and internal fixation with the application of stainless steel 2.0-mm LCP (AO Compact Hand System; Synthes, Oberdorf, Switzerland) from December 2009 to October 2010. The total arc of motion of fingers, grip power, complications, and additional surgery were recorded.

**Results:** Three out of six patients eventually restored good hand functions in terms of the total arc of finger motion ( $>220^\circ$ ) and grip power. The commonest complication was skin impingement in finger region by the implant (4 cases). Another common complication was restricted range of motion (3 cases). One patient had minimal degree of malrotation of his left little finger. Additional surgery was required in all the patients for implant removal (6 cases), tenolysis (3 cases), and capsulotomy (2 cases).

**Conclusions:** The stainless steel 2.0-mm LCP is useful for the fixation of unstable comminuted hand fractures, especially in metacarpal bones, because of its advantage of better stability, which allows more aggressive rehabilitation. However, its design is not very versatile and, therefore, limits its use in the finger region. Its bulkiness frequently causes implant impingement. The patients must be informed about the chance of implant removal later.

#### **中文摘要**

**目的:** 回顧研究 2.0 毫米不銹鋼鎖定加壓鋼板(LCP)骨接合系統應用於治療亞洲成

年人手部粉碎性骨折的臨床效果。

**方法:** 於 2009 年 12 月至 2010 年 10 月期間，六位有手部粉碎性骨折的病人接受了開放式復位及 2.0 毫米不銹鋼鎖定加壓鋼板(LCP)骨接合系統骨折內固定手術的治療。並記錄其手指的總活動弧度、手握力、併發症及附加手術。

**結果:** 六位病人中有三位最終恢復良好的手部功能，其手指的總活動弧度大於 220 度和有良好的手握力。最常見的併發症是手指的皮膚被植入的金屬鋼板撞擊(4 個個案)、手指活動僵硬(3 個個案)、左尾指輕微轉位異常(1 個個案)。所有的病人均須接受附加的手術，當中包括拆除植入的鋼板(6 個個案)、肌腱鬆解手術 (3 個個案) 及關節囊切開術(2 個個案)。

**結論:** 2.0 毫米不銹鋼鎖定加壓鋼板(LCP)骨接合系統能夠應用於手部不穩定粉碎性骨折，尤其是掌骨。因它能提供良好而鞏固的骨折固定，有利於病人在手術後接受進取的康復治療。然而，它的設計不是很靈活，因此限制了它在手指區域的使用。最常見的問題是手指的皮膚被植入的厚金屬鋼板衝擊，所以病人接受有關手術前應告知日後有可能需要拆除已植入的金屬鋼板的可能性。

**Keywords:** *hand fractures, locking compression plate*