

잠김금속판 사용 중 범하기 쉬운 오류 및 합병증 (Pitfalls and Complications in the Application of the Locking Plate)

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용 어

LCP (locking compression plate) Morse cone
torque limiting driver 18)
LHS (locking head screw)
(double threads) LCP
(combination hole or combi-hole) locking
hole 가
가 torque limiting driver torque limiting
locking screw attachment torque가 가
, AO Course 17)
가 가
(locking screw) torque
잠김 나사 제거와 관련된 문제점 limiting driver
driver shaft torque limiting
가 3,7,8) torque limiting
LCP driver 가
가 가 torque limiting driver
가 3,7,8) Geor-
가 giadis LISS (less in-
vasive stabiligation system) plate 3 35
4.9 mm 6 (17%)
(hexagonal recess stripping) 7)
7)

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80

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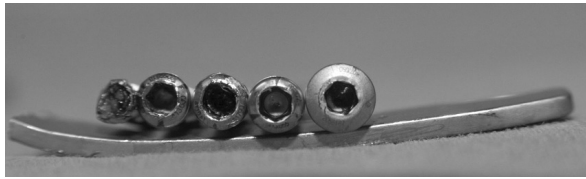


Fig. 1. A photo shows 3.5 locking head screws with stripped hexagonal recess.



Fig. 2. Conical extraction screws and drills for the removal of the stripped head¹⁶⁾ (Oh et al, with permission).

torque limiting driver
가

5.0
3.5 가

(Fig. 1).
conical extrac-
(Fig 2).

AO
conical extraction screw 1

conical extraction screw

Georgiadis 가)
AO
hexagonal recess
star driver system
가
가
가
star driver system

torque limiting driver
recess)
(stripping of the hexagonal
LCP 가
가 가
가 driver

driver 가 hexagonal recess sitting 가
Foil interposition technique 가)
hexagonal recess stripping
recess
foil driver recess driver
가 foil 가

hexagonal recess stripping
conical extraction screw
screw가 recess
extraction screw screw head
extraction screw
head
recess
conical extraction screw

Georgiadis metal cutting carbide tipped bur 7)
 가 conical
 extraction screw recess
 가 elevator
 shaft 가 3.5
 LCP 가 가
 16)
 가



Fig. 3. Two of the three proximal locking screws seem to be placed through the posterior cortex itself because the plate is placed too posteriorly to the femoral shaft.

수술 술기와 관련된 문제점

1. 부적절한 금속판 위치 (malposition of the plate)

locking plate anatomically pre-shaped 가 가
 LISS LCP-DF
 LCP-PLT가 targeting device가
 combination hole 가
 LISS

LCP-DF LCP-PT
 LCP-DF가

bony landmark
 LCP-DF 15)

가
 가

(Fig. 2, 3).

23)

LISS

62 Schutz²²⁾
 7

Schandelmeier¹⁹⁾ 4

가

(anterolateral bowing)

가

가

26)
 가 가
 4~5 cm

DF가

1 cm
 Romann clamps

가

15)

image)

11 hole LCP-

(true lateral
 10~20

(Fig. 4A~C).

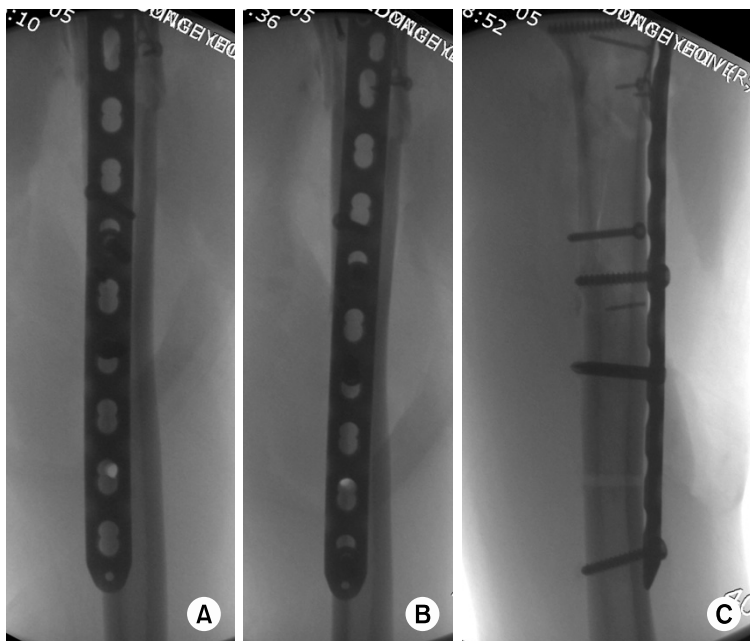


Fig. 4. Subtle malposition of the plate can result in failure of the locking head screw fixation.

(A) Unusual resistance during the drilling prompted us to check this image, finding the drill bit was passing through the anterior cortex itself.

(B) True lateral image shows just a little bit of plate malposition.

(C) The most distal hole has to be filled with a conventional screw due to the plate malposition.

가

가

(secondary reduction

loss)

가

13,14,24) LCP

가

가

가

가

2. 수술 중 및 수술 후 추시 중 정복 소실

가

6,25)

1) 일차 정복 소실

anatomically pre-shaped locking plate

가

가

가

Fankhauser

29 LPHP (locking proximal humeral plate)

3

(primary loss of reduction)

LCP

가

4

12

7 가

5

가

(cutting through the

head)

1

25)

가

LPHP

가

2) 이차 정복 소실 - 관절 골편의 이완

- Angled blade plate
blade
가
fixator
가¹⁾
LISS LCP-DF internal
2,3,10-12,21,22,26)
가
Schandelmaier
가 10-12,21,22)
2-,4,10-12,21,22,26)
lateral
가
distal femoral angle (LDFA)
가
3) 2차 정복 소실-간부 골편에서의 이완 (pull out of the plate screw construct)
Ricci LISS 38 1
가 pull out¹⁹⁾
3 unicortical screw가
2 2,10,11,19,21)
가 2,3,19)
working length
bicortical screw technique
23,25)
4 8
25)
3. 수술 중 발생한 부정 선열 (intraoperative mal-alignment)
LISS
LCP
결 론
(angle stability)
가
locking plate
anatomically pre-shaped
2,3,10-12,21,22,26)
(bone union rate)
가
38
가 Schutz
26% 가
22)

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