

Research Article

Study of proximal femoral locking compression plate in extra capsular fracture neck of femur

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ABSTRACT

Background: The hip joint transmits weight several times that of the body weight particularly during running, functioning as both a highly mobile and very stable joint. In weight bearing the pressure forces are transmitted to the head and neck of the femur at an angle of 1650 to 1700, regardless of the position of pelvis. The planes of force coincide with strongly developed trabeculae. The reacting force normally runs perpendicular to the cartilaginous epiphyseal plate. The mechanism of bone failure in a structure will fail if it suffers an overload situation. An overload situation will occur if the system is unable to absorb the energy that is applied to it. In the hip joint area this overload situation can occur as a result of number of independent but often interrelated factors. The present work is conducted to study the profiles of patients with extra capsular fracture neck of femur, efficiency and outcome of fractures treated with Proximal Femoral Locking Compression Plate (PFLCP), intra-operative & post-operative complication following management of extra capsular fracture neck of femur with Proximal Femoral Locking Compression Plate.

Methods: This is a prospective study of 21 cases of extra capsular fracture neck of femur admitted to Victoria and Bowring and Lady Curzon Hospitals, Bangalore, treated with PFLCP.

Results: In our study of 21 cases, 13 cases were intertrochanteric fracture and remaining 8 were subtrochanteric fracture with the mean age was 51.47 years. Minimum age was 19 years and maximum age was 85 years. 14 patients (67%) were males and 7 patients (33%) were females, 13 IX patients (62%) had right-sided fracture and 8 patients (38%) had left-sided fracture. with right side being more common side affected. The average duration of stay in the hospital was 25.31 days. The average follow up was 18 months [11 to 23 months]. Out of 21 patients in our study 16 patients (76%) are able to sit cross-legged and can squat on ground without any problem. The functional results were graded according to Harris Hip Scoring, In our study, 10 patients (48%) had excellent results, 8 patients (38%) had good results, 2 patients (10%) had poor result, and 1 failed case (5%) as she is an elderly female of 85 years with limited activity both preoperatively due to physiological age and general weakness.

Conclusions: In conclusion the potentiality of the Proximal Femoral Locking Compression Plate (PF-LCP) in varied indications, shows its versatility. Although not free of complications our study has demonstrated excellent results. The procedure offers, faster mobilization, rapid return to activities of daily living, improves the quality of life and gave a long term solution in patients with extracapsular fracture neck of femur. Larger studies with longer follow up will further validate the procedure.

Keywords: Intertrochanteric fractures, Subtrochanteric fracture, Proximal femoral locking compression plate (PFLP), Harris hip score

INTRODUCTION

Extracapsular fracture neck of femur are common in moderate to high velocity injuries. Fracture union is not a great problem due to proximal femoral anatomy. Unlike intracapsular fractures of neck of femur, there is no fear of complications like, avascular necrosis of head and its sequelae of osteoarthritis. Though trochanteric fractures can unite without surgical intervention, malunion with coxa vara deformity resulting in shortening of limb and limp are commonly seen. Until operative treatment involving the use of various implants was introduced in the 1950s, hip fractures were managed using conservative methods based on traction and bed rest. Various operative procedures with different implants have been described for the treatment of extracapsular neck of femur fractures. Earlier active treatment was usually delayed for as long as three to four weeks because it was believed that attempts to immobilize the limb by splints traction or open reduction with internal fixation would prove fatal but this usually leads to secondary complications like varus deformity. The primary goal of treatment is early mobilization to avoid secondary complications which may arise due to conservative treatment and due to other co-morbid complications of prolonged immobilization. This can be achieved by Proximal Femoral Locking Compression Plate. This allows early weight bearing and has a lower complication rate than other implants. The extra capsular fracture neck of femur are relatively common injuries in adults. The Intertrochanteric fractures in younger individuals are usually the result of a high-energy injury, such as a motor vehicle accident (MVA) or fall from a height. Ninety percent of intertrochanteric fractures in the elderly results from a simple fall. In elderly patients with intertrochanteric fractures most of them have considerable osteopenia, with the quality of bone for the purchase of fixation within the femoral head and neck less than desirable. Hence it is important that the internal fixation device be placed in that part of the head and neck where the quality of bone is good and the implant and bone fixation should be rigid and stable. The most important goal of operative treatment is strong, stable fixation of the fracture fragment. Trochanteric lateral plate is superior to a compression hip screw to support the lateral aspect of the greater trochanter in unstable fractures. This aids in resisting lateral sliding of the proximal fragment and maintaining an anatomical reduction. The Skin, fat, and muscles surrounding the hip can absorb large amounts of energy from an impact. The age-related decline in muscle mass around the hip may account for the increased incidence of hip fractures with aging. Furthermore, because the reaction times are longer and muscle strength less, older persons' protective responses tend to be too little and too late. Operative management, which allows early rehabilitation and offers the patient the best chance for functional recovery, is the treatment of choice for the vast majority of intertrochanteric fracture.¹

In 2001 Christopher and Court-Brown compared the surgical complications and functional outcome in the extracapsular hip fractures. There were 400 patients entered into the study and 399 followed up to one year or death. The main surgical outcome measurements were fixation failure and reoperation. A functional outcome of pain, mobility status, and range of movement were assessed until one year. They concluded that Routine use of the Gamma nail in this type of fracture cannot be recommended over the current standard treatment of dynamic hip screw or PFLP.² In 2001 Olsson and Ceder compared 54 patients in a prospective randomized study of, the management of intertrochanteric femoral fractures. He concluded that Biaxial dynamisation in unstable intertrochanteric fractures is a safe principle of treatment, which minimizes the rate of postoperative failure of fixation.³ In 2001 Bartoníček J, Dousa P In his study average duration of surgery ranges in dependence on the applied implant, type of fracture and skills of the surgeon between 30 and 60 minutes. Relatively shortest duration can be achieved in DHS or plating method, in Gamma nail and PFN the duration is slightly longer. Of much greater importance for the patient is the quality of the surgery. Thus concluded that favoring any method only on the basis of the duration of surgery is absolutely irrelevant.⁴ In 2002 Parker MJ, Handoll HH concluded that The fixed nail plate has higher risks of implant breakage and fixation failure than other implant. Though insufficient evidence on other outcomes is available from randomized trials, the increased fixation failure rate is a major consideration and thus other implant appears preferable. Insufficient information is available to draw firm conclusions of the clinical significance of differences between the sliding hip screw and other extra medullary fixation plates.⁵

In 2003 Wagner M in his study on general principles for the clinical use of the LCP. He showed the newly developed, so-called locked internal fixators consist of plate and screw systems where the screws are locked in the plate. This locking minimizes the compressive forces exerted by the plate on the bone. The plate does not need to be pressed on to the bone to achieve stability. The basic locked internal fixation technique aims at flexible elastic fixation to initiate spontaneous healing, including its induction of callus formation.⁶ In 2003 Schütz M, Südkamp NP concluded in an study that during the 1980s the AO/ASIF group started to work on new plate designs to overcome the negative effect of compression forces on the periosteum, a new generation of plates or internal fixators, were created. The key to these internal fixators is the locking mechanism of the screw in the implant, which provides angular stability. This technical detail ensures that compression forces on the bone surface are not necessary to gain stability of the bone-implant construct, which improves fracture healing and provides an excellent holding force even in osteoporotic bone. The new internal fixator systems LCP (locking compression plates) offer new approaches to trauma surgery, especially for metaphyseal fractures.⁷ In 2004 Wagner M,

Frenk A, Frigg R in a study concluded that problems are encountered in the fixation of osteoporotic bone. The locked internal fixator technique is an approach to optimize internal fixation. It aims at flexible elastic fixation to imitate spontaneous healing, including induction of callus formation. An implant system called "Locking Compression Plate (LCP)" was developed, based on many years of experience with compression plating and good clinical results obtained with internal fixators. It combines the two treatment methods (ie, the compression plating and locked internal fixation methods) into one system.⁸

In 2004 Egol KA, Kubiak EN, et al concluded that Locked plates and conventional plates rely on completely different mechanical principles to provide fracture fixation and in so doing they provide different biological environments for healing. Locked plates may increasingly be indicated for indirect fracture reduction, diaphyseal/ metaphyseal fractures in osteoporotic bone, bridging severely comminuted fractures.⁹ In 2005 Cornell, Charles N showed in a study that Osteoporotic bone, especially in metaphyseal areas, is too weak to allow sufficient screw torque to be generated for development of stability in plated fractures. Modified techniques that achieve load sharing improve the results of fracture repair in these cases. Locking plate fixation, which creates a single beam construct not relying on the generation of a friction force, is a significant advantage in osteoporotic fracture care. The new technology results in enhanced fixation and better clinical outcome, Locking plates will offer a significant advantage compared with conventional plates when treating fractures in osteoporotic bone.¹⁰ In 2007 Stern R concludes in a study that While the rate of failure following hip fracture surgery for extracapsular hip fractures in the elderly is low In general, a well-executed osteosynthesis is the best assurance of a good outcome with few complications, and typically a less than ideal placement of the implant in the femoral head is the reason for cut-out and failure of the operation. However, what is less clear is whether there are newer ideas and/or implant designs that represent true advances in the treatment of extracapsular fractures in the elderly.¹¹

In 2007 Miller DL, Goswami T the abstract of his study is Metallic implants are often involved in the open reduction and internal fixation of fractures. The locking compression plate combines the conventional screw hole, which uses non-locking screws, with a locking screw hole, which uses locking head screws. This allows for more versatility in the application of the plate. There are many factors which affect the functionality of the plate.¹² In 2008 Miller DL, Goswami T, et al. the conclusions made in the study are Open reduction and internal fixation of fractures involves the use of metallic implants to support bone reduction. The locking compression plate is a contemporary implant that allows for both conventional screw placement (using nonlocking screws) and locking screw placement (where screw heads lock

into the plate at a predetermined angle). This allows for greater versatility in the application of internal fixation.¹³ In 2008 Schmidt, Andrew H. MD in his study showed that anatomically precontoured locking plates have revolutionized the care of many fractures, including Locking plates designed for the proximal femur have recently been introduced and offer a potential means to deal with complex fractures of this region as well. They conclude that indications for the use of locking plates in subtrochanteric and other complex fractures of the proximal femur is best available option.¹⁴ In 2009 Floyd JC, O'Toole RV, Stall A, et al PFLPs have been developed for subtrochanteric and pertrochanteric fractures and are potentially easier to apply with less soft tissue dissection. Clinical experience has raised concerns regarding the strength of the PFLP. The purpose of their study was to compare the relative stability of PFLP with the 95 degrees angled blade plate under loads simulating the first 3 months of progressive weight bearing after fracture fixation. They concluded that Use of that the PFLP might be a viable alternative fixation method for comminuted subtrochanteric femoral fractures that currently are treated with blade plates¹⁵

In 2009 Crist BD, Khalafi A, Hazelwood SJ, Lee MA The angled blade plate has been the historical standard in fixed-angle extramedullary subtrochanteric femur fracture fixation, it requires an lateral approach to the femur. Axial stiffness testing revealed that the PFLP was the stiffest construct (92.2 +/- 17.4 Nm/m), which was 211% stiffer than the blade plate, 309% stiffer than the broad plate. The PFLP had the least irreversible deformation (6.3 mm), which was 52% less than the broad plate .Conclusion are that the PFLP provides more axial stiffness, less torsional stiffness, and equivalent irreversible deformation to cyclic axial loading when compared with the blade plate.¹⁶ In 2009 McGrory BJ, Lucas R in his study of stable fixation for healing of the greater trochanter, he presented a novel and straight forward locking plate technique that we currently use to achieve fixation. The technique uses implants that are readily available, and can be employed. At a minimum of 20 months follow-up, healing of the fracture with full abductor function and a significant improvement in hip score was observed in each of the 4 patients. He acknowledge that biomechanical and larger clinical studies are necessary to confirm the success of this technique, but he was pleased with his preliminary findings and continued using this approach.¹⁷ In 2010 Kim JW, Oh CW, Byun YS concluded the locking compression plate construct proved stronger fixation in terms of ultimate strength by biomechanical testing of a simulated subtrochanteric femur fracture with comminution. Although the nail construct proved strongest, the biomechanical performance of the locking plate construct may lend credence to the use of a locking plate for minimally invasive plate osteosynthesis of subtrochanteric femur fractures, which may be technically difficult to fix using a nail.¹⁸

In 2010 Sun JF, Shen YY et al studied the effect of minimally invasive treatment with the locking compression plate (LCP) in the treatment of extracapsular fractures of the proximal femur (hip) in the elderly age. In Twenty-eight cases of intertrochanteric fracture were retrospective studied from August 2007 to January 2009, included 13 males and 15 females with an average age of 78.6 years ranging from 70 to 102 years. All the 28 patients were treated with minimally invasive operations with locking compression plates. The time from injury to operation was ranged from 3 to 8 days (with an average of 4.5 days). Concluded that minimally invasive approaches with proximal femoral LCP could treat the elder intertrochanteric fractures with the advantages such as minimal invasive, stable fixation and less blood loss.¹⁹ In 2010 Wieser K, Babst R in a study concluded that the PFLCP 4.5/5.0 represents a new generation of extramedullary fixation devices for stable and unstable trochanteric and/or subtrochanteric fractures.²⁰ In 2011 Minghua, Wenwei YAO Hangan et al did an analysis on efficiency of PFLCP for the treatment of intertrochanteric fractures. They studied 34 cases of intertrochanteric fractures were treated by proximal femoral locking plate during 2005 May to 2009 and all were followed up for an average of 8.7 months. They found that According to Harris score standard, the results were 22 cases excellent (≥ 90 score), 12 cases good (80-89 score). The good to excellent rate was 100%. They concluded that Proximal femoral locking plate is good option for the treatment of Intertrochanteric fracture having advantages of faster healing of fractures, sound fixation and less complications.²¹

In 2011 Shao-hong, WANG Wei-lin et al A Comparative Study of Locking Compression Plate and Dynamic Hip Screw in Treatment of Femoral Intertrochanteric Fractures And their clinical efficacy. A retrospective analysis is made in their hospital from November 2008 to February 2010, in 46 elderly patients with intertrochanteric fracture treated they found that in all patients, there were no significant difference in the fracture healing time, $P < 0.05$. LCP Group Harris hip function score excellent in 20 cases, good in 4 cases, the total score was 96.1% (25/26), significantly higher than the DHS group 85.0% (17/20), $P < 0.05$. LCP group had less complication rate and limb shortening were significantly better than the DHS group, $P < 0.05$. Hence they concluded that the locking compression plate fixation of intertrochanteric fractures is of more biomechanics, stable fixation, fewer complications, in the treatment of intertrochanteric fracture of a better way.²² In 2011 Song Yang, Wang Yong-an, et al did a retrospective analysis on 143 elderly patients with intertrochanteric fractures and comparative Study of DHS, PFLP and PFN for treatment of elderly patients with intertrochanteric fracture and their curative effects. All the patients followed up from May 2006 to October 2010. They applied DHS (A group), PFLP (B group), PFN (C group) as treatment method, and made assessment of outcome of these implants using Harris hip

score. All patients were followed up 10-22 months, average 17.4 months. All the fractures united, and hip function recovered well. The curative effects were: excellent in 102 patients, good in 33 cases and moderate 8 cases. Excellent and good rate was 94.4%. Finally they concluded that Harris hip score in A group is worse than B and C group ($P < 0.05$), but there is no significant difference in postoperative complications ($P < 0.05$).²³

In 2011 Guo-Chun Zha Ze et al did a study on treatment of pertrochanteric fractures treated with a proximal femur locking compression plate. And they report the clinical trial of pertrochanteric fracture treatment with a proximal femur locking compression plate (PFLCP) on 110 patients (72 females and 38 males). By recording and analysing the radiographic and clinical results from patients treated with PFLCP, they found that PFLCP could provide three-dimensional fixation mechanical advantages compared with conventional treatments, even in the case of unstable fractures in the osteoporotic bone. and Concluded that The PFLCP can be a feasible alternative to the treatment of pertrochanteric fractures. Treatment with a PFLCP can provide good-to-excellent healing for pertrochanteric fractures, with a limited occurrence of complications.²⁴ In 2011 Philip J Glassner, Nirmal C Tejwani did a study on Failure of proximal femoral locking compression plate in a case series. Of the seven cases, only two cases were acute pertrochanteric fractures, one was a periprosthetic fracture at the site of a prior hip fusion, one was an early failure of a compression hip screw and three were nonunions. The failure mode was implant fracture in four cases and loss of fixation in three cases resulting from varus collapse and implant cutout. Five of seven failures were within the first 3 weeks (average, 12.4 days). The average time to failure for all cases was 37.9 days (range, 5-175 days). The average patient age was 56.7 years (range, 36-72 years). Concluded that seven failures in their cases may be partially the result of patient factors as well as technical factors; however, there appears to be a high rate of failure even when surgery is performed by experienced and fellowship-trained traumatologists.²⁵

In 2011 Zhongguo Gu Shang et al in comparative study of intertrochanteric fractures treated with proximal femur locking compress plate in elderly patients and compared the clinical outcomes of dynamic hip screw (DHS), intramedullary fixation (IF) and proximal femur locking plate (PF-LCP) in the treatment of 165 old patients with intertrochanteric fractures were treated respectively by DHS, IF, PF-LCP. There were 58 DHS, 65 IF and 42 PF-LCP cases in study. All patients were followed up from 15 to 21 months (averaged 18.3 months). The rehabilitation and healing time of IF and PF-LCP were less or shorter than that of DHS group, The functional recovery of IF group and PF-LCP were better than that of DHS group finally the complications of PF-LCP group was fewer than that of IF group and DHS group. Concluded that PF-LCP is the credible method for intertrochanteric fractures in the elderly patients.²⁶

METHODS

Prospective study of adult patients of either sex having extra capsular fracture neck of femur who were admitted to Victoria hospital and Bowring & Lady Curzon hospital attached to Bangalore Medical College & Research Institute. The Inclusion criteria, male & female adult patients aged more than 18 years, patients with proximal femoral fracture including intertrochanteric fracture, sub trochanteric fracture with varying degrees of comminution. Patients who are medically fit for surgery and who have given their written informed consent for the procedure. The exclusion criteria, intra capsular fracture neck of femur, fracture more than 7.5cm below the lesser trochanter, Patients less than 18 yrs of age, Patients not willing for the surgery, Patients medically unfit for surgery. The Microsoft Excel software was used for data entry and analysis. Surgery was performed under spinal anesthesia/Epidural anesthesia/GA Surgery was closed reduction and internal fixation with PFLP for an extra capsular fracture neck of femur. Post-operatively, no immobilization was used. Third generation Cephalosporin were used 24 hours preoperatively, intraoperative and postoperatively, and oral antibiotics till suture removal. The patients were followed postoperative an average of 18 months.

RESULTS

In our study of 21 cases, cases 13 cases were intertrochanteric fracture and remaining 8 were subtrochanteric fracture with the mean age was 51.47 years. Minimum age was 19 years and maximum age was 85 years. 14 patients (67%) were males and 7 patients (33%) were females, 13 IX patients (62%) had right-sided fracture and 8 patients (38%) had left-sided fracture. with right side being more common side affected. The average duration of stay in the hospital was 25.31 days. The average follow up was 18 months [11 to 23 months]. Out of 21 patients in our study 16 patients (76%) are able to sit cross-legged and can squat on ground without any problem. In our study of 21 cases, cases 13 cases were intertrochanteric fracture and remaining 8 were subtrochanteric fracture with the mean age was 51.47 years. 13 patients (62%) had right-sided fracture and 8 patients (38%) had left-sided fracture. with right side being more common side affected.

Table 1: showing the results after fractures treated with proximal femoral locking compression plate

Results with Harris Score	No of patients	%	X ²	P
Excellent(91-100)	10	48%	11.190	0.011
Good(80-90)	8	38%		
Poor(60-70)	2	10%		
Failure(<60)	1	5%		

The average duration of stay in the hospital was 25 days. The average follow up was 18 months. Out of 21 patients in our study 16 patients (76%) are able to sit cross-legged and can squat on ground without any problem.

DISCUSSION

Fixation of intertrochanteric fracture has evolved through various implant devices whereas dynamic hip screw is the most practiced and established implant followed by proximal femoral nail which is an intramedullary device. The following implants have their own limitations in comminuted fractures especially with lateral cortex fractures, sub trochanteric fractures and with co existing osteopenia. In our present study, inter trochanteric fractures and sub trochanteric fractures have been considered in this study. 13 cases were intertrochanteric fractures. Among them 7 patients were males and 6 patients were female, 8 patients had right side injury and 5 patients had left side injury. The remaining 8 patients were sub trochanteric fracture. This included 7 males and 1 female with 5 patients having had right sided and 3 patients had left sided fracture.

Extracapsular fractures occur mainly in adults and showed the same patterns but the mean age differed in few depending on the number of the fractures studied. Studies by Emily Banks et al²⁷ in 2009 showed mean age of 70 years. The mean age of the patients was 75 (48-93) years in the another²⁶ in 2011.

In study by Philip J Glassner et al,²⁸ the average patient age was 56.7 years (range, 36-72 years). Andres P et al²⁹ study had an average age of 75.8 years. The mean age observed in our study was 51.5 years. The youngest in our study was 19 years and the oldest was 85 years old. We had 43 % of patients below 50 years of which most of them had a history of RTA or significant injury.

Gender specificity shows more preponderances towards female to sustain these fracture than male. This is due to vulnerability of female because of postmenopausal osteopenia and related factors. Wang Yet al³⁰ in 2011 had 23 males and 19 females out of their 42 patients. Ecker et al³¹ observed 82% of female gender and 18 % of males in their study. Of the 21 cases studied 14 patients (67%) were males and 7 patients (33%) were females. 48% in the present series had an history of road traffic accident as the mode of injury of which all were males except one female (case 20). 4 patients (Females) (19%) had trivial trauma. 2 patients (female) (10%) had self fall, one from his bike. We had 2 males (10%) with history of fall from a height. Patients below 50 years were all males and all had significant mode of injury. This may explain the male preponderance fractures in our study.

Boyd and Griffins³² classifications for trochanteric fractures is used in the study. In our study, 11 patients presented with Type II fractures and 2 patients with Type III fractures making total of 13 intertrochanteric fractures,

which is found to be statistically significant. Seinsheimer's Classification is used for Subtrochanteric fracture of which 2 patients are of type 3A and 5 patients are of type 4. 5 patients in our series had associated injuries. The injuries were fracture of both pubic rami, distal radius fractures, multiple rib fractures, 3rd & 4th metacarpal fractures in different patients. All the associated fractures were managed appropriately. Comorbid conditions observed was hypertension in 3 cases (14%), diabetes mellitus in 2 cases (10%), one case of Anemia (5%) and pulmonary tuberculosis (5%) which were treated accordingly. The average duration of stay in the hospital was 25.31 days with minimum stay of 10 days to maximum of 46 days. This was due to time taken for treatment of preexisting diseases, scheduled operating days in the hospital, delay of procurement of implants by the patients, time taken for post op recovery and rehabilitation in wards. In studies of Malcolm L et al³¹ it was 25.9 days, Richard F. Kyle et al³³ was 18 days and Moore et al³⁴ hospital stay was 21 days. Judicial use of preoperative traction reduces the pain and improves the compliance of the patient. Above knee skin traction was used in 38% (8 cases) of the cases that were planned for an early surgery. 62% (13 cases) of them had to undergo upper tibial skeletal traction as the surgery was delayed for one or many of the reasons mentioned earlier. Finsen³⁵ in 1992 found that there was no difference in the time taken to reduce the fracture or the length of operating time by preparative traction. In 1998 Resch³⁶ compared skin traction versus skeletal traction. 50% of skeletal compared with 20% of skin traction group. He also found no difference between the two groups as he stated that many patients found the application of skeletal traction painful both Finsen³⁵ 1992 and Resch³⁶ 1998 reported no significant difference in the length of operation.

Post operative weight bearing status was dependent on fracture pattern. Stability at fixation, osteoporosis and general well being of the patient. Compliance of the patient was also taken into consideration. Touch down weight bearing to Partial weight bearing was allowed from day 1 to 8 weeks. Further partial weight bearing to full weight bearing was allowed between 8 weeks to 12 weeks depending upon the fracture healing and other associated factors. In our series 16 patients started partial weight bearing till 8 weeks and 5 patients started delayed partial weight bearing at 12 weeks. Full weight bearing started at 16 weeks in 16 patients and 5 patients started at 20 weeks. The functional results were graded according to Harris Hip Scoring System, where in, a score of 91-100 for excellent results, 80-90 being good, 70-79 fair, 60-69 poor, and below 60 a failed result. In our study, 10 patients (48%) had excellent results, 8 patients (38%) had good results, 2 patients (10%) had poor result, and 1 case was considered as failure (5%). This particular patient is an elderly female of 85 years and her pre injury activities of daily life were grossly limited and dependant and her mobility was not independent. In their study Shao-hong1, WANG Wei-lin et al²² 2011 showed that Harris hip

function score was excellent in 24 cases, good in 20 cases, and poor in 4 cases. Minghua XI E Wenweiet in 2011 observed an Harris score results were excellent (≥ 90 score) in 22 cases showed good (80-89 score).²¹

CONCLUSION

In the present study of PF-LCP, performed for extracapsular fracture neck of femur in 21 patients, at Victoria Hospital, Bowring and Lady Curzon Hospital, the procedure offered an excellent pain free mobile hip, with easy rehabilitation and rapid return to functional level, when standard techniques were used. The potential of the PF-LCP in varied indications shows its versatility. Although not free of complications our study has demonstrated excellent results. The procedure offers, faster mobilization, rapid return to activities of daily living, improves the quality of life and gave a long term solution in patients with extracapsular fracture neck of femur. Larger studies with longer follow up will further validate the procedure.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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