

12-1-2001

## The composite fixation using polymethylmethacrylate and tension band wiring for comminuted pilon fractures in osteoporosis

V. Wiliairatana

P. Prasongchin

Follow this and additional works at: <https://digital.car.chula.ac.th/clmjjournal>



Part of the [Medicine and Health Sciences Commons](#)

---

### Recommended Citation

Wiliairatana, V. and Prasongchin, P. (2001) "The composite fixation using polymethylmethacrylate and tension band wiring for comminuted pilon fractures in osteoporosis," *Chulalongkorn Medical Journal*: Vol. 45: Iss. 12, Article 5.

Available at: <https://digital.car.chula.ac.th/clmjjournal/vol45/iss12/5>

This Case Report is brought to you for free and open access by the Chulalongkorn Journal Online (CUJO) at Chula Digital Collections. It has been accepted for inclusion in Chulalongkorn Medical Journal by an authorized editor of Chula Digital Collections. For more information, please contact [ChulaDC@car.chula.ac.th](mailto:ChulaDC@car.chula.ac.th).

## The composite fixation using polymethylmethacrylate and tension band wiring for comminuted pilon fractures in osteoporosis

Vajara Wiliairatana\*

Pairatch Prasongchin\*

**Wiliairatana V, Prasongchin P. The composite fixation using polymethylmethacrylate and tension band wiring for comminuted pilon fractures in osteoporosis. Chula Med J 2001 Dec; 45(12): 1073 - 7**

*Pilon fracture require extended treatment and often result in implant failure and loss reduction in elderly who has osteoporosis. We present a case in which pilon fracture was treated using polymethylmethacrylate bone cement and tension band wiring. The patients was a man age 50 year old. The fracture united within 6 weeks and the patient could walk on the day after the surgery. Composite fixation using polymethylmethacrylate was determined to be available technique.*

**Key words:** *Pilon fracture, Osteoporosis, Composite fixation , Polymethylmethacrylate.*

Reprint request : Wiliairatana V, Department of Orthopaedic, Faculty of Medicine,  
Chulalongkorn University, Bangkok 10330, Thailand.

Received for publication. August 20, 2001.

**วัชร วัลรัตน์, ไพรัช ประสงค์จีน. การผ่าตัดตามกระดูกโดยใช้ Polymethylmethacrylate และ tension band wiring ในผู้ป่วย pilon fracture ที่มีกระดูกบางและหักละเอียด : รายงานผู้ป่วย 1 ราย. จุฬาลงกรณ์เวชสาร 2544 ฐ.ค; 45(12): 1073 - 7**

การรักษาผู้ป่วยที่มี *pilon fracture* ชนิดหักละเอียด พบว่ามีปัญหาที่ตามมาสูงโดยเฉพาะในผู้ป่วยสูงอายุที่มีภาวะกระดูกบาง

รายงานการรักษาผู้ป่วยสูงอายุ 1 ราย อายุ 50 ปี ที่รักษาโดยการผ่าตัดตามกระดูกด้วย *Polymethylmethacrylate* และ *tension band wiring* โดยเทคนิคนี้หลังผ่าตัดผู้ป่วยสามารถเดินลงน้ำหนักได้เร็ว และมีการเคลื่อนไหวของข้อที่ดีและกระดูกสามารถเชื่อมติดได้หลังผ่าตัด 6 สัปดาห์

**คำสำคัญ :** *Pilon fracture* , *Osteoporosis* , *Composite fixation* , *Polymethylmethacrylate*.

key to good long-term outcome.<sup>(4)</sup> The present case highlights a technique using a composite fixation of polymethylmethacrylate to fill the intramedullary bone defect and tension band fixation. The advantage of this technique is using a small implants which cause less dissection and allow wound closure with less tension on the skin edges. The elderly trauma patient can full weight bearing on the injure site on the day after the surgery. We acknowledge that this study is a short term follow-up, the problems of cement bone interface may occur. However, on the basis of our study, we conclude that the composite fixation of polymethylmethacrylate and tension band wiring is considered to be another option for treatment of the comminuted pilon fracture in elderly.

#### References

1. Mast JW, Spiegel PG, Pappas JN. Fractures of the tibial pilon. Clin Orthop 1988 May;230:68 - 82
2. Rüedi TP, Allgöwer M. Fractures of the lower end of the tibia into the ankle joint. Injury 1969 Jan; 1(1): 92 - 9
3. Tometta P3d, Weiner L, Berqman M, Watnik N, Steuer J, Kelley M, Yano E. Pilon fractures: treatment with combined internal and external fixation. J Orthop Trauma 1993; 7(6): 489 - 96
4. Wyrsh B, McFerran MA, McAndrew M, Limbird TJ, Harper MC, Johnson KD, Schwartz HS. Operative treatment of fractures of the tibia plafond. A randomized prospective study. J Bone Joint Surg Am 1996 Nov; 78A(11): 1646 - 57
5. Marsh JL, Bonar S, Nepola JA, DeCoster TA, Hurwitz SR. Use of an articulated external fixator for fractures of the tibial plafond. J Bone Joint Surg Am 1995 Oct; 77A(10): 1498 - 509
6. McFerran MA, Smith SW, Boulas HJ, Schwartz HS. Complications encountered in the treatment of pilon fractures. J Orthop Trauma 1992; 6(2): 195 - 200
7. Muller ME, Nagarian S, Koch P, Schatzker J. The comprehensive classification of fractures of long bones. New York : Springer Verlag, 1987: 170 - 9
8. Ovadia DN, Beals RK. Fractures of the tibial plafond. J Bone Joint Surg Am 1986 Apr; 68A(4): 543 - 51
9. Pugh KJ, Wolinsky pr, McAndrew MP, Johnson KD. Tibial pilon fractures:a comparison of treatment methods. J Trauma 1999 Nov;47(5): 937 - 41
10. Sirkin M, Sanders R. The treatment of pilon fractures. Orthop Clin North Am 2001 Jan;32(1): 91 - 102
11. Blauth M, Bastian L, Krettek C, Knop C, Evans S. Surgical options for the treatment of severe tibial pilon fractures: a study of three techniques. J Orthop Trauma 2001 Mar-Apr;15(3):153 - 60
12. Kellam JF, Waddell JP. Fractures of the distal tibial metaphysis with intra-articular extension : the distal tibial explosion fracture. J Trauma 1979 Aug; 19(8): 593 - 601
13. Rüedi TP, Allgöwer M. The operative treatment of intra-articular fractures of the lower end of the Tibia Clin Orthop 1979 Jan-Feb;138: 150 - 10
14. Beauchamp CG, Clay NR, Thiexton PW. Displaced ankle fractures in patients over 50 years of age. J Bone Joint Surg Br 1983 Mar; 65B(3): 329 - 32
15. Egol KA, Wolinsky P, Koval KJ. Open reduction and internal fixation of tibial pilon fractures. Foot Ankle Clin 2000 Dec; 5(4): 873 - 85