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= Abstract =

## Nonunion of the Fracture of Distal One-third of Femoral Shaft treated by Interlocking Intramedullary Nailing

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The twelve nonunions of distal one-third fracture of femoral shaft after interlocking intramedullary nailing were treated with reaming and exchange nailing with a larger-sized nail, or reaming and exchange nailing with a larger-sized nail added with poller screw fixation. All the femoral nonunion were caused by insecure fixation of the intramedullary nailing, in which a instability of the fracture sites was verified in all cases during operation. The six of them were treated with reaming and exchange nailing. A simultaneous bone graft was performed in one of them to repair the bony defect. The other six of them were treated with reaming and exchange nailing added with poller screw fixation.

The result were as follows:

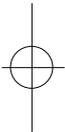
1. In six cases that treated with reaming and exchange nailing, patients walked bearing full weight on the extremity with mild aching at the fracture site within 3 months and not obtained a bony union until a 12 months.

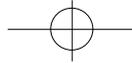
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- 2. In one case that treated with reaming and exchange nailing added with poller screw fixation, patient walked bearing full weight on the extremity with mild aching at the fracture site within 3 months and not obtained a bony union until a 12 months.
- 3. In five cases that treated with reaming and exchange nailing added with poller screw fixation, patient walked bearing full weight on the extremity without aching at the fracture site within 3 months and obtained a bony union within a average of 7 months.

From our experience, etiology of nonunions of distal one-third fractures of femoral shaft is thought insecure fixation of the intramedullary nailing due to wide intramedullary canal. We have found reaming and exchange nailing with poller screw fixation is more helpful treatment that reaming exchange nailing as treatment for those fractures.

**Key Words:** Femoral shaft fracture, Distal one-third, Nonunion

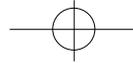


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(Fig. 1).

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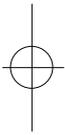
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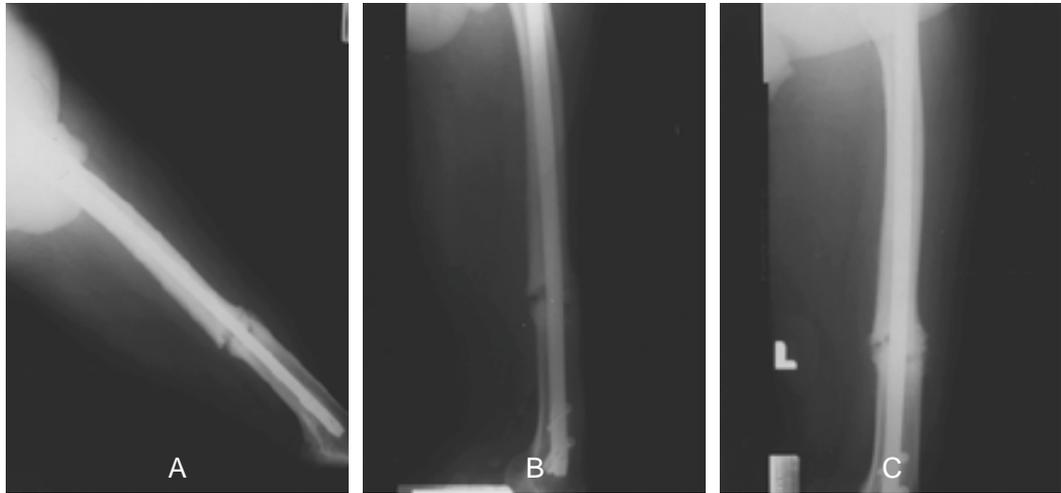
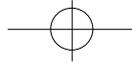
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**Table 1.** Result

No	sex/age	1st F/U(mos)	Nonnion type	Treatment	POD 12 months	
					pain on walking	bone union
1	M/25	9	hypertrophic	exchange nailing	(+)	(-)
2	M/38	17	hypertrophic	exchange nailing	(+)	(-)
			bone graft			
3	M/36	15	hypertrophic	exchange nailing	(+)	(-)
4	M/36	12	hypertrophic	exchange nailing	(+)	(-)
5	F/39	15	hypertrophic	exchange nailing	(+)	(-)
6	M/29	13	hypertrophic	exchange nailing	(+)	(-)
7	M/30	13	hypertrophic	exchange nailing	(+)	(-)
			poller screw fixation			
8	M/59	16	hypertrophic	exchange nailing	(-)	(+)
			poller screw fixation			
9	F/47	12	hypertrophic	exchange nailing		(-) (+)
			poller scerw fixation			
10	M/43	17	hypertrophic	exchange nailing	(-)	(+)
			poller scerw fixation			
11	M/46	14	hypertrophic	exchange nailing	(-)	(+)
			poller scerw fixation			
12	M/52	12	hypertrophic	exchange nailing	(-)	(+)
			poller scerw fixation			





**Fig 1.** A 36-year-old man with interlocking intramedullary nailing of left femoral fracture for 15 months.

- A.** Radiographs at presentation showed a radiolucent line and a broken and loosed distal screw at the distal one-third femoral fracture site indicating hypertrophic nonunion. : femur AP, lateral
- B.** Radiographs immediately after exchange nailing. : femur AP, lateral
- C.** Radiographs at 13 months after exchange nailing showed a radiolucent line and a loosening of distal screw at the distal one-third of femoral fracture site indicating hypertrophic nonunion. : femur AP, lateral



16  
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(Fig. 2).

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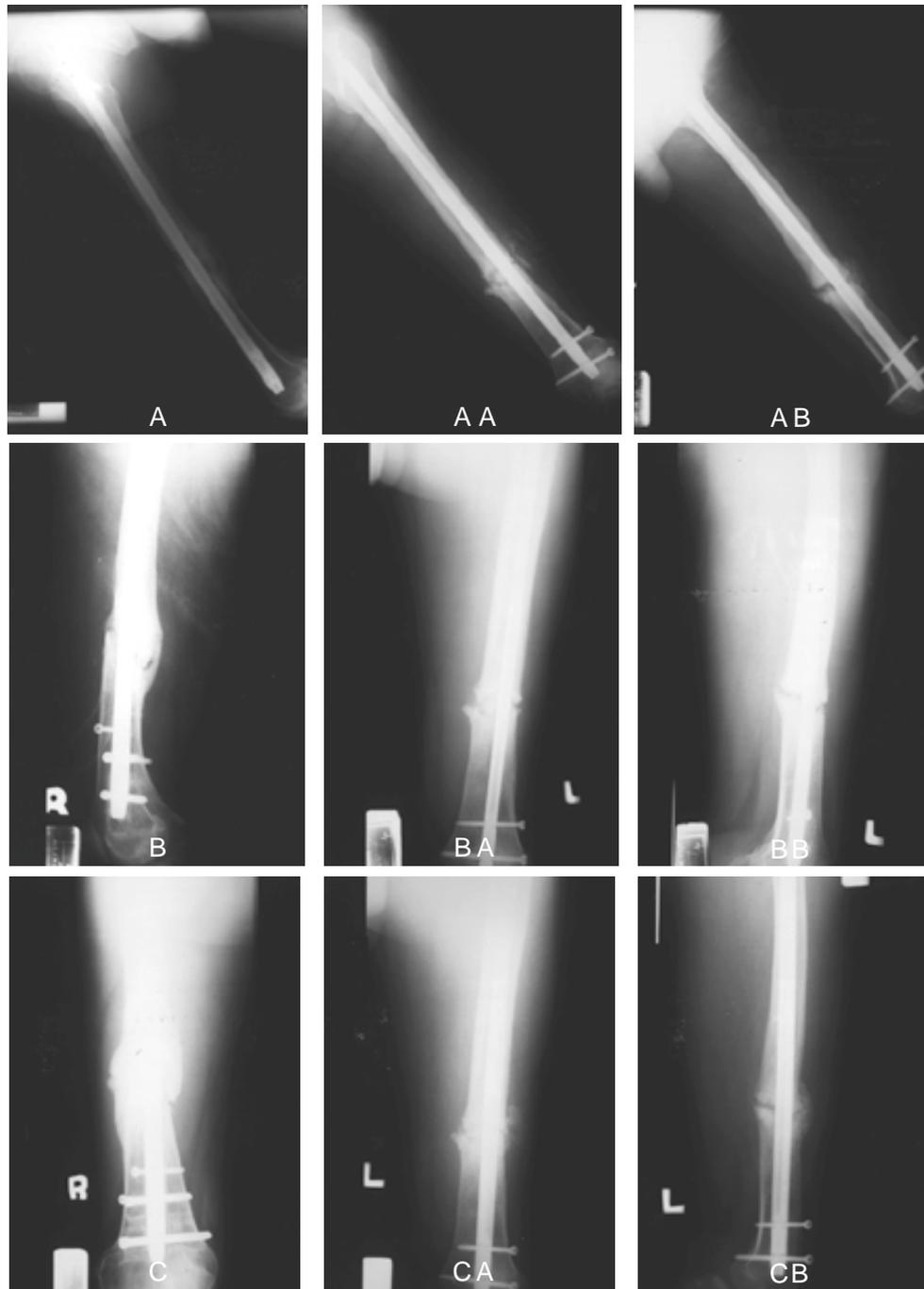
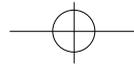
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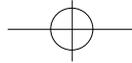
**Fig 2.** A 59-year-old man with interlocking intramedullary nailing of right femoral fracture for 16 months.

**A.** Radiographs at presentation showed a radiolucent line at the distal one-third of femoral fracture site indicating a nonunion. : femur AP, lateral

**B.** Radiographs immediately after exchange nailing and poller screw insertion. : femur AP, lateral

**C.** Radiographs at 8 months after exchange nailing and poller screw insertion showed a solid union. : femur AP, lateral





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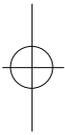
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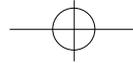
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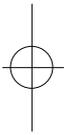
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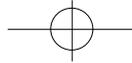
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