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(Dyna-extor)	5	6	,	.
3	,			2~3 mm
:	3	,	2	.
13.4 (9~19)	,			22.2 (15~29)
8.8 (3~14)	. 4	5		37 (25~50)
5.8 cm	, 1	150		7.2 cm
3			, 2	.
	22			.
:				.
:				.

13.4 (9~19)

8.8

(3~14)

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1 가 150

7.2 cm

, 4 5
37 (25~50) 5.8

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가

cm

3

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3

2

22

3,4)



Fig. 1. Anteroposterior radiographs (case 2) of knee of 23-year old male who had tumor prosthesis reconstruction before 11 years ago (A) showed leg shortening caused by aseptic loosening and stem subsidence, (B) external fixator applied and 5 cm lengthened after tumor prosthesis removal, (C) and underwent revision with tumor prosthesis.

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1,2)

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 (dead space) 가

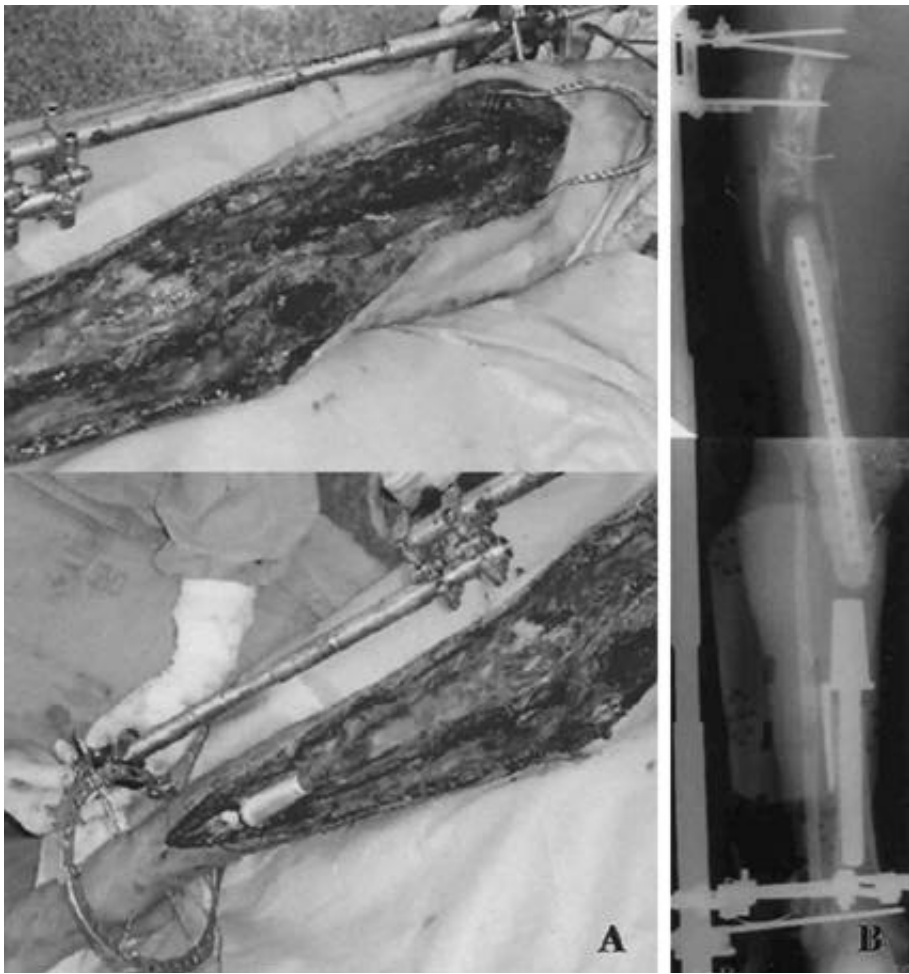


Fig. 2. (A) Photographs showing external fixator apply in the operation field of removed infected tumor prosthesis which seen in Figure 1 (C, B) radiograph showed 8 cm lengthening in the 50 days.

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 가 (volumet 가 가
 ric contracture) 가 ,
 가 가 가
 가 가 2
 3~5 mm
 5
 가 가
 가 2
 (tissue expander)

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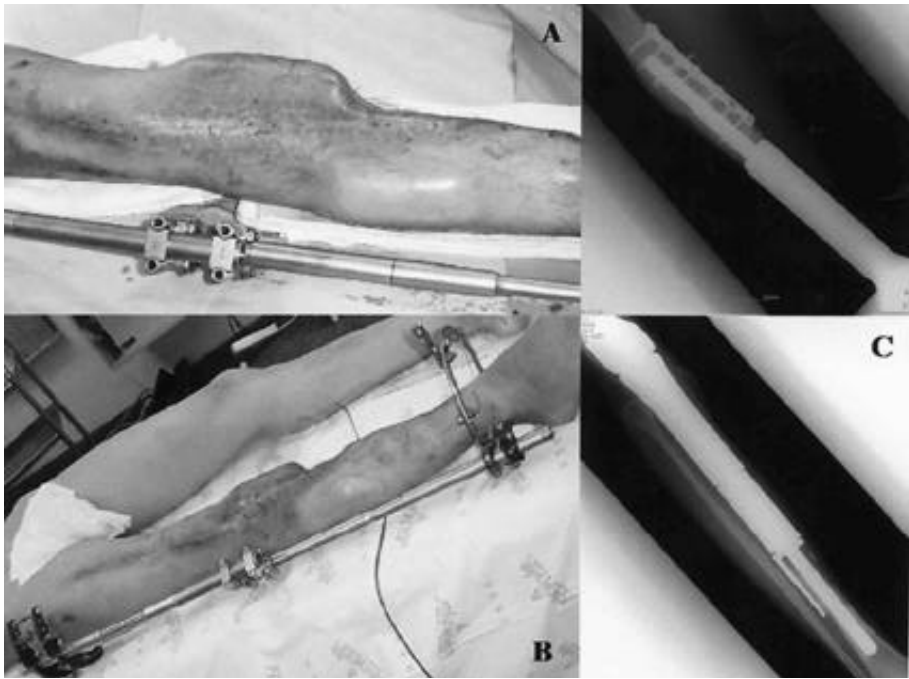


Fig. 3. (A) Photographs showed two area of volumetric expansion by concomitant used tissue expander, (B) preoperative state of final operation, and (C) radiographs showed final revision state with tumor prosthesis.

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Abstract

Temporary Use of External Fixators for Soft Tissue Lengthening in the Treatment of Complications after Limb Salvage Surgery

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Purpose: We evaluated the effectiveness of temporary using the extendible external fixator (EF) for lengthening of soft tissue that contracture caused by tumor prosthesis removal in the treatment of complications after limb salvage surgery like deep infection and loosening.

Materials and Methods: Five patients six cases were included who underwent extendible EF (Dyna-extor(r)). EF was applied after insertion of half pin to the proximal and distal bone of defect area. EF lengthening started at third day of post-operation, above 2-3 mm per day in the range of no neurological sign.

Results: The treatment area was three in femur and two in tibia. Mean age when the time of EF apply was 22.2 years old (range 15-29), but its primary limb salvage operation had done in 13.4 years old (range 9-19), therefore mean times of interval between initial tumor prosthesis reconstruction and temporary EF apply was 8.8 years (range 3-14). One patient had EF for 150 days with 7.2 cm lengthening. Others 5 cases of 4 patients had EF for mean 37 days (range 25-50) and mean soft tissue lengthening was 5.8 cm. Three patients underwent re-insertion of tumor prosthesis and two patients underwent knee fusion as final operation and showed no evidence of infection through mean 22 months follow up period

Conclusion: Temporary using of extendible EF is an effective method for correction of leg shortening which occurred by soft tissue contracture in the complications of limb salvage operation or their treatment process, and it could be provide easily application of tumor prosthesis and knee fusion as final operation.

Key Words: Tumor prosthesis complication, Leg shortening, Soft tissue lengthening, External fixator

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