

EVALUATION OF THE MIDTERM FUNCTIONAL RESULTS OF KNEE TUMOR PROTHESIS REPLACEMENT SURGERIES

Awad Abdelmoniem Elmalky, Mohamed Mahmoud Abouheif, Saed Mohamed Mohamed Shekedaf, Ahmed Shawky Ahmed Dwyer

Department of Orthopaedic Surgery and Traumatology, Faculty of Medicine, Alexandria University

Introduction

Endoprosthetic reconstruction following bone tumour resection is a well-known and popular method for preserving limbs. In the early experience with limb salvage, functional outcomes were not of main interest because patients with malignant illness had extremely low survival rates.

The durability and functional outcomes of reconstructions are increasingly significant factors to take into account as a result of advancements in medical therapy that have boosted long-term patient survival. Endoprosthetic functional outcomes following reconstructions have been the topic of numerous studies the majority of which used subjective parameters like the Musculoskeletal Tumor Society (MSTS) score.

The study of the functional outcomes in relation to those variables will allow the implementation of exclusion criteria for better refinement of functional outcomes.

Aim of the work

The aim of this retrospective study was to evaluate the midterm functional results of knee tumor endoprosthesis surgeries.

Patients and Methods

This study included 20 patients who had primary bone tumor (distal femur or proximal tibia) and previously treated by wide local excision and replacement by knee tumor prosthesis.

Patients were managed at at El-Hadara University Hospital for Orthopaedic surgery and traumatology, Alexandria, Egypt, and Borg el arab university hospital, 14 and 6 patients respectively.

- The data collected from the patients archived data and fuctional evaluation according to the revised Muscloskeletal tumor society rating scale MSTs. Our patients' ages ranged from a minimum of 17 years old to a maximum of 58 years old with a mean age of 33.20 ± 13.76 years old. There were 11 males (55%) and 9 females (45%).
- The functional score calculated as the average of total score of every patient in 4 visits divided by total score of 30 according to MSTs then correlated to variables.

Results

1-The mean functional score for all patients was 68.71%, the maximum functional score was 81.67% while the minimum was 55.0%. Functional score of 20 or more out of total score of 30 ($\geq 66.67\%$) were considered satisfactory while functional score less than 20 ($< 66.67\%$) were considered unsatisfactory.

Table 1: Distribution of the studied cases according to functional score (n = 20)

	No.	%
Total score (degree)		
Unsatisfactory (<20)	7	35.0
Satisfactory (≥ 20)	13	65.0
Min. – Max.	16.50 – 24.50	
Mean \pm SD.	20.61 ± 2.24	
Median (IQR)	20.75 (19.38 – 22.13)	
Functional score (%)		
Min. – Max.	55.0 – 81.67	
Mean \pm SD.	68.71 ± 7.46	
Median (IQR)	69.17 (64.58 - 73.75)	

IQR: Inter quartile range

SD: Standard deviation

2- Relation between site of tumor and functional score :

In 12 patients the site of the tumor was distal femur while in 8 patients the proximal tibia was affected, the mean functional score for those with distal femur replacement was greater than those with proximal tibia replacement.

Table 2: Relation between site of tumor and functional score (n=20)

Functional score	Site of tumor		t	P
	Proximal tibia (n = 8)	Distal femur (n = 12)		
Min. – Max.	55.0 – 73.33	60.0 – 81.67	2.758*	0.015*
Mean \pm SD.	63.85 ± 6.44	71.94 ± 6.41		
Median	65.0	72.92		

t :Student t test

p: p value for comparing between Site and functional score

IQR: Inter quartile range

SD: Standard deviation

*: Statistically significant at $p \leq 0.05$

Conclusion

- Tumor endoprosthesis is the best option for limb reconstruction following tumor excision around the knee joint allowing early mobilization with low rate of infection and local recurrence.
- Functional evaluation and follow up is needed to assess prosthesis survival.