

# A Three-Year Single Center Quality of Life Study Among Adult Patients With Tuberculosis Arthritis who Underwent Surgery



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## ABSTRACT

**Background:** Tuberculosis arthritis is a type of extrapulmonary manifestation of tuberculosis (TB) and can be seen in many clinical forms, especially in developing countries.

**Aims:** This study will look into the quality of life (QoL) of patients who were diagnosed with tuberculous arthropathy of the extremity and underwent surgery at the University of Santo Tomas Hospital (USTH) from January 2014 to December 2016 using the Tagalog SF – 36 questionnaire.

**Methods:** All patients who underwent surgery for TB arthropathy at USTH for three years were included. The Tagalog SF – 36 questionnaire was administered to the patients during follow-up to assess the QoL scores. A detailed evaluation of the questions was performed to depict any pattern on specific areas that affect the QoL of patients.

**Results:** Patients who underwent surgery scored high for role emotional (mean 93.33) and lowest on the bodily pain scale (mean 69.2). Higher physical component scores (PCS) were noted in patients who underwent surgery in 2014 compared to 2015 and 2016. Higher mental component scores (MCS)

scores were also noted in patients operated in 2014 compared to 2015 and 2016. All patients have good QoL scores after surgery and complete medical treatment as demonstrated by the SF-36 scores. Tuberculous arthropathy can affect the physical and mental aspects of patients. No significant difference in mean scores by year were seen in all the scales of the SF-36 ( $p = >0.05$ ).

**Conclusion:** All patients have good QoL scores after surgery and complete medical treatment as demonstrated by the SF-36 scores. QoL scores showed more improvement as the duration post-treatment is longer.

**Keywords:** Tuberculosis, TB arthritis, TB arthropathy, musculoskeletal tuberculosis, quality of life (QoL), SF-36

## INTRODUCTION

Tuberculosis is known to be transmitted primarily through droplet inhalation or ingestion of *Mycobacterium tuberculosis*. The initial exposure can lead to infection that can be cleared by the host leading to a primary infection. This infection, however, can be reactivated from a latent infection. Hence, lymphogenous, hematogenous, or contiguous spread to other tissues and organ systems can occur. This is a disease that affects more commonly

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in developing countries and rare in developed countries. According to the World Health Organization 2014 global report on tuberculosis: It remains one of the world's deadliest communicable diseases. In 2013, 9 million people were reported to have acquired TB and 1.5 million died of the disease, of which 360,000 were HIV-positive. On a positive note, cases of TB are declining each year. It is reported that 37 million lives were saved between the years 2000 and 2013 through prompt diagnosis and treatment.[1]

Pulmonary involvement is the common site of TB but this deadly disease can infect any organ system of the body. Extrapulmonary TB is reported in 14% of patients, with bony involvement in 1%-8% of the

time. Concurrent pulmonary and osseous involvement happens in 50% of patients. The most commonly affected bone is the vertebra in 30%-50% of patients. The usual osseous involvements are on the major weight-bearing joints of the lower extremity like the hip and knee, followed by the foot, elbow and hand. The common sites involved in musculo-skeletal TB include the spine (50%), pelvis (12%), hip and femur (10%), knee and tibia (10%), ribs (7%), ankle/shoulder (2%), elbow or wrist (2%) and multiple sites (3%).[2]

Tuberculous synovitis or arthritis of the knee has a characteristic monoarticular involvement and commonly affects the weight-bearing joints such as the knee and hip. The disease initially presents as syn-

**Table 1.** Summary of USTH patient profiles having TB arthropathy

Patient	Age	Sex	Diagnosis	Extremity/ Part involved	Procedure done	Follow-up
1	72	F	TB arthritis	Knee – L	Arthrotomy and synovectomy	12
2	44	F	TB arthritis	Shoulder – L	Arthrotomy and debridement	16
3	53	F	TB arthritis	Knee – R	Debridement, arthrotomy and synovectomy	24
4	33	M	TB arthritis	Ankle – L	Arthrotomy and debridement	12
5	41	M	TB arthritis	Knee – R	Arthrotomy and debridement	26
6	56	M	TB arthritis	Wrist – R	Arthrotomy and debridement	10
7	22	M	TB arthritis	Knee – R	Arthrotomy, synovectomy, excision of multiple soft tissue masses	16
8	60	M	TB arthritis	Elbow – R	Arthrotomy and debridement	12
9	44	M	TB arthritis	Knee – R	Arthrotomy and debridement	6
10	30	F	TB tenosynovitis	Hand – R	Debridement and synovectomy	12
11	60	M	TB synovitis	Wrist – L	Arthrotomy and debridement	9
12	71	F	TB synovitis	Elbow – R; knee, wrist - L	Arthrotomy and debridement	9
13	48	F	TB synovitis	Ankle – L	Arthrotomy and debridement	6
14	46	M	TB arthritis	Knee – L	Arthrotomy and debridement	8
15	42	F	TB tenosynovitis	Hand – R	Debridement and synovectomy	12

ovitis leading to arthritis with demineralization, erosions and lastly joint destruction.[3] Early changes are seen through MRI. Joint effusion will show hyperintense signal on T2W, but debris, loose bodies and hemosiderin deposits can be seen as hypointense signals on both T1W and T2W.

The primary goals in the treatment of bone TB are eradicating the infection, limiting the deformity, maintaining joint mobility, reducing pain and discomfort. Most of the patients can be treated conservatively with chemotherapy, rest, and gradual remobilization. On the other hand, operative management includes arthrotomy, synovectomy, and curettage with bone grafting of the articular defect; curettage and bone grafting of extra-articular lesions; joint and bone resection; abscess drainage; arthrodesis; and amputation.[7]

The objective of this study was to determine the QoL of adult patients with TB arthropathy who underwent surgery at the USTH from January 2014 to December 2016. Furthermore, the secondary objectives were to assess the PCS score and MCS score of TB arthritis adult patients and present the following scales using the Tagalog SF-36 v2: a) Physical functioning; b) Role limitations due to physical health; c) Role limitations due to emotional problems; d) Energy/fatigue; e) Emotional well-being; f) Social functioning; g) Pain; h) General health. Moreover, the clinical profile and outcome of surgically treated adult patients with TB arthritis were looked into.

This is a descriptive cross-sectional study conducted over a period of 3 years among admitted adult patients in the USTH diagnosed and treated as TB arthritis. The study included all adult patients with TB arthritis who underwent surgery at the USTH from January 2014 to December 2016. The patients were identified throughout patient and in-patient records of the Department of Orthopedics from January 2014 to December 2016. Also, the diagnosis of TB arthritis was conferred with the final histopathology report and was reviewed at the records section of the pathology laboratory.

Once identified, the charts, records and imaging data were reviewed. Inclusion criteria for this study were adult Filipinos (>18 years old) who had been histologically diagnosed with TB arthritis in any part of the extremity, patients treated medically with anti-TB medications for at least 9 months, patients who were surgically managed at the USTH with at least 6 months follow-up after completion of treatment.

Patients were excluded from this study if no consent was given by the patient, if they were unable to answer the Tagalog SF – 36 v2 questionnaire and also patients with other bone and soft tissue conditions that may affect the function of the extremity (such as other arthropathies).

The scores of the 8 scales of the SF-36 (set to a metric of 0-100) including two norm-based summary scores (PCS and MCS) were computed. Independent t-test and one-way Analysis of variance (ANOVA) were used to compare the mean SF-36 scores by extremity affected and year of surgery, respectively. Significant ANOVA results were further analyzed. A p-value  $\leq 0.05$  was considered statistically significant.

## RESULTS

A total of 15 TB arthritis patients underwent surgery in the USTH between January 2014 and December 2016—5 patients for each year. A slightly higher proportion of TB arthritis patients were male (Table 2). About half (6) of the patients had diabetes mellitus (DM), 27% (4) have a family history of TB and 13% (2) have a history of TB treatment (Figure 1). More than half of the patients (8) were affected in their lower extremities. One (1) patient was diagnosed with TB arthritis in both the upper and lower extremities (Figure 2). The majority (40%) were affected in the knee/tibia area (6), followed by the ankle, hand and wrist with two (2) pathologies, respectively. Other pathologies (1) include the shoulder and elbow. Only 1 patient had multiple sites—the knee, wrist and elbow (Figure 3). A majority of the patients had stage 2 (late) TB arthritis. Only 2 patients were diagnosed with stage 1 (early) (Figure 4). All

**Table 2.** Demographic profile of TB arthritis patients in USTH (n=15)

CHARACTERISTICS	N%
<b>Age at the time of surgery</b>	
<40 years old	3 (20)
40-59 years old	8 (53)
$\geq 60$ years old	4 (27)
<b>Sex</b>	
Male	8 (53)
Female	7 (47)

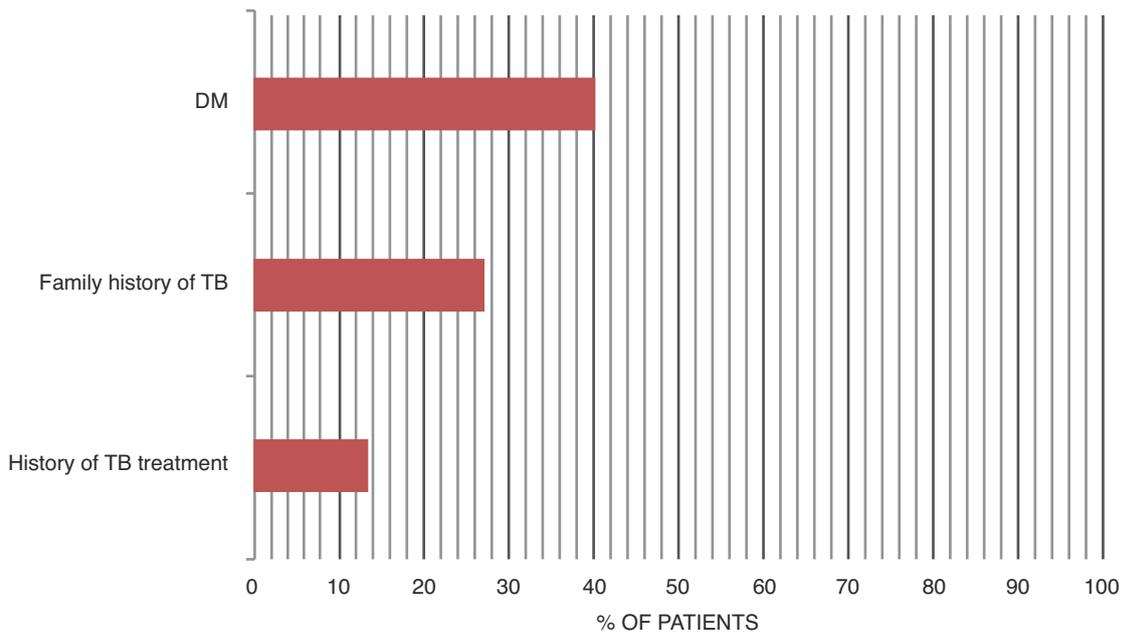


Figure 1. Clinical profile of TB arthritis patients in USTH (n=15)

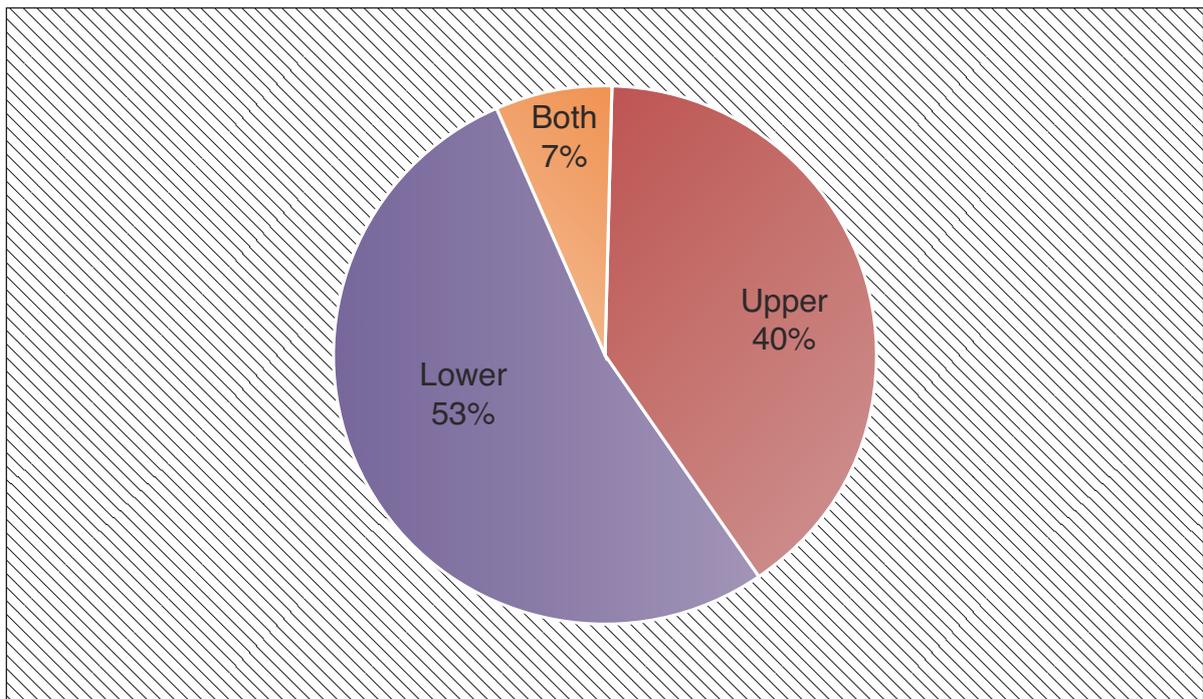
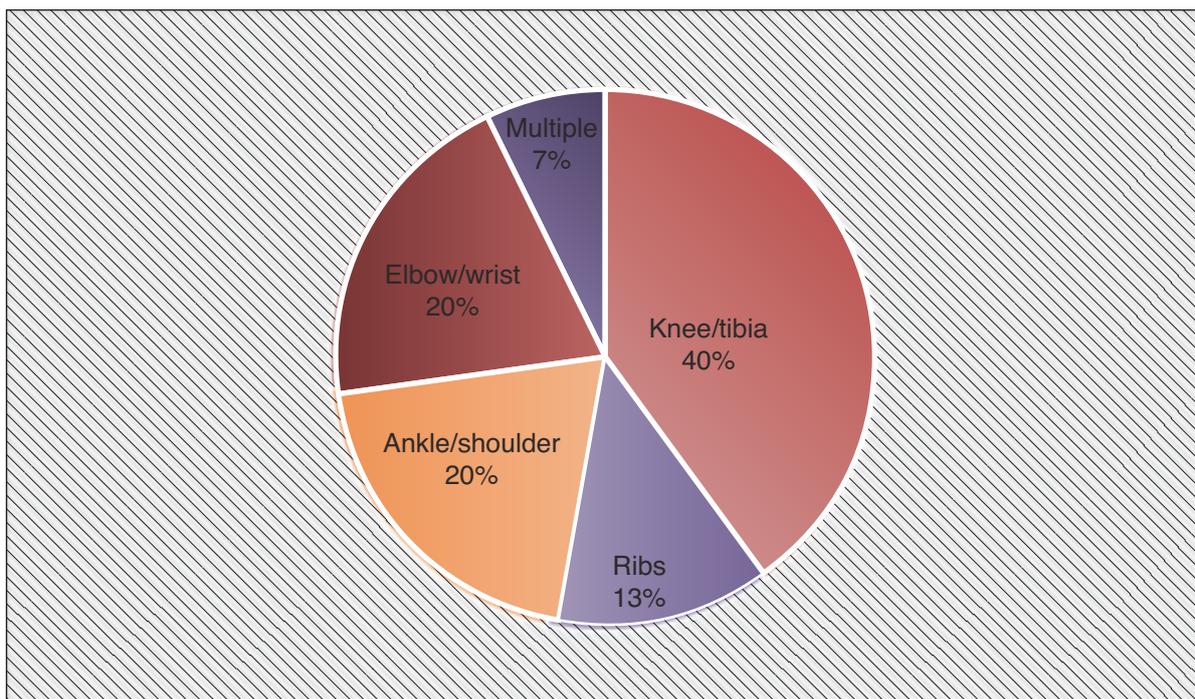


Figure 2. Extremity affected by TB arthritis in USTH (n=15)

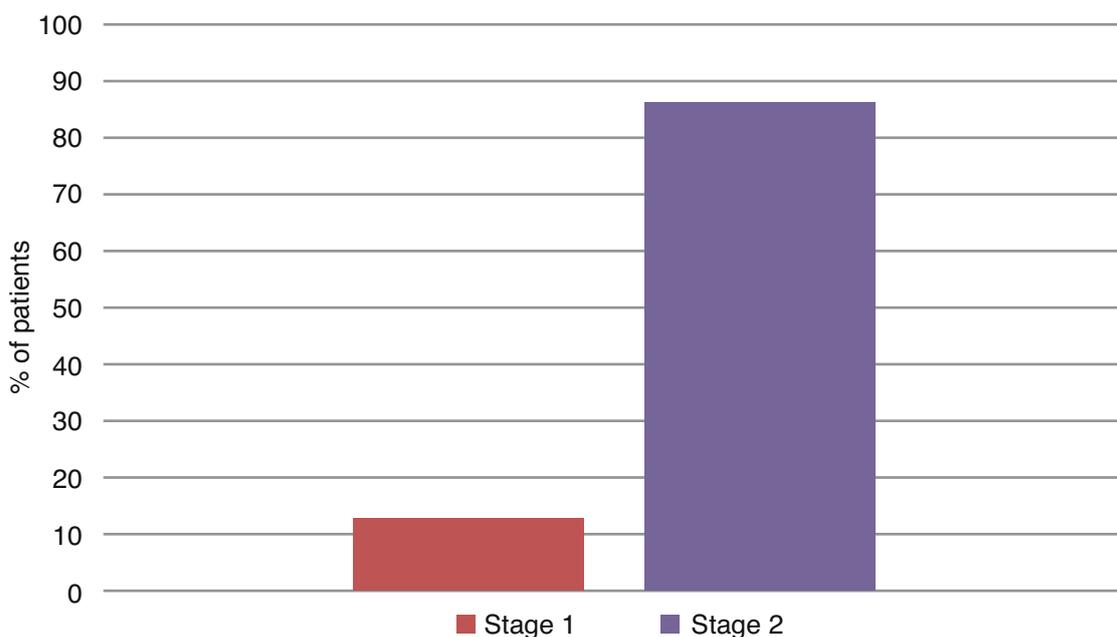
patients underwent some form of debridement with or without arthrotomy or synovectomy.

The QoL scores were measured using the Tagalog SF-36 v2. Table 3 summarizes the mean SF-36 scores of patients by year of surgery. Based on the overall score of TB arthritis patients who underwent surgery, QoL is considered to be relatively high, especially for role emotional (mean: 93.33). The lowest mean score was obtained for the bodily pain

scale (mean: 69.2). The mean score in bodily pain is significantly higher in patients who underwent surgery in 2014 compared to 2016. The mean score in mental health is significantly higher in patients who underwent surgery in 2014 compared to 2016. No significant difference in mean scores by year was noted in the following scales: general health (GH), physical function (PF), role physical (RP), vitality (VT), social function (SF) and role emotional (RE). It can



**Figure 3.** Specific site of TB arthritis of patients seen in USTH (n=15)



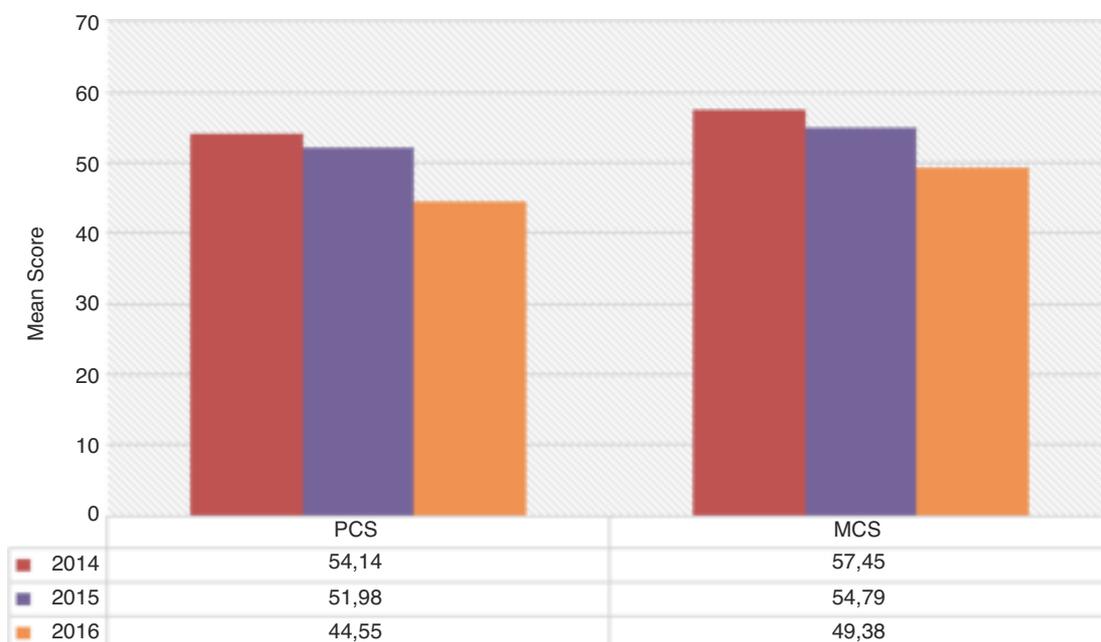
**Figure 4.** Stage of TB arthritis of patients seen in USTH (n=15)

be observed that the highest mean score is exhibited by patients who underwent surgery in 2014 and the lowest in patients who underwent surgery in 2016. The mean PCS and MCS score by year of surgery (n=15) are summarized in Figure 5. There is no significant difference in mean PCS and MCS scores by year of surgery ( $p=0.1837$  and  $p=0.1557$ , respectively). There are lower mean scores in patients who underwent surgery in 2016 and higher mean PCS

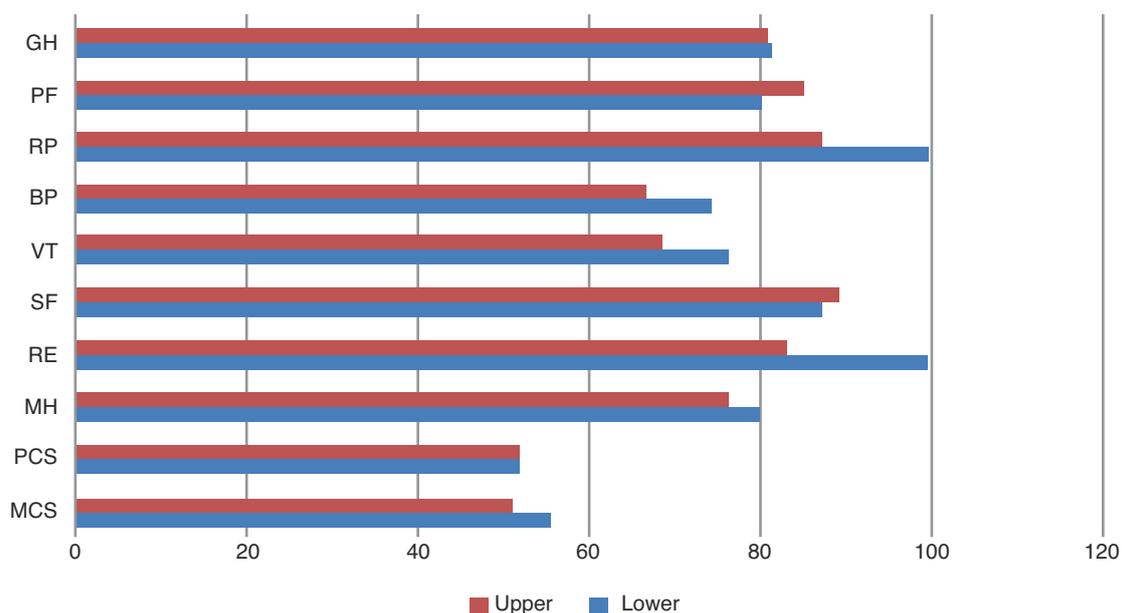
scores in patients who underwent surgery in 2014 compared to patients who underwent surgery in 2015 and 2016. There is a higher mean MCS score in patients who underwent surgery in 2014 compared to 2015 and 2016. The mean SF-36 scores by year of extremity affected (n=14\*) are depicted in Figure 6. One patient with multiple extremity pathology was excluded. No statistical significance was detected in mean SF-36 scores by the extremity affect-

**Table 3.** Mean SF-36 scores of patients in USTH with TB arthropathy by year of surgery

	TOTAL	2014 (n=5)	2015 (n=5)	2016 (n=5)	P VALUE
General health (GH)	79.40 ± 19.20	87.2 ± 17.05	80.8 ± 8.44	70.2 ± 27.28	0.3967
Physical function (PF)	79.67 ± 17.00	90 ± 10.61	76 ± 13.87	73 ± 22.25	0.2532
Role physical (RP)	83.33 ± 31.15	100 ± 0	100 ± 0	65 ± 48.73	0.1170
Bodily pain (BP)	69.2 ± 6.57	69.2 ± 6.57	84.8 ± 20.81	53.6 ± 11.50	0.0156*
Vitality (VT)	72.50 ± 13.53	77.5 ± 9.48	77.5 ± 13.69	62.5 ± 13.26	0.1252
Social function (SF)	85.83 ± 17.59	92.5 ± 11.18	90 ± 10.46	75 ± 25	0.2492
Role emotional (RE)	93.33 ± 25.82	100 ± 0	100 ± 0	80 ± 44.72	0.3966
Mental health (MH)	77.67 ± 8.84	77 ± 5.70	85 ± 9.35	71 ± 5.48	0.0273*



**Figure 5.** Mean PCS and MCS score by year of surgery in patients having TB arthropathy USTH (n=15)



**Figure 6.** Mean SF-36 scores by year of extremity affected of patients having TB arthropathy in USTH (n=14\*)

\*1 patient affected in both upper/lower extremity was excluded in the analysis

ed (all  $p$ 's > 0.05). GH:  $p=0.9526$ , PF:  $p=0.4426$ , RP:  $p=0.2643$ , BP:  $p=0.4414$ , VT:  $p=0.3112$ , SF:  $p=0.8096$ , RE:  $p=0.2643$ , MH:  $p=0.4857$ , PCS:  $p=0.9984$ , MCS:  $p=0.2344$ . The mean scores of patients affected in the upper extremity were found to be lower except for PF and SF. In addition, the mean PCS scores were found to be comparable between the two groups.

## DISCUSSION

Musculoskeletal manifestations are seen in 1%-3% of patients with tuberculosis.[1] In the past three years, the USTH has seen a few number of cases managed both surgically and medically.

The diagnosis of TB arthritis is delayed due to lack of awareness, insidious onset, lack of characteristic early radiographic findings and often lack of constitutional or pulmonary involvement. In the series of cases presented, most of the patients presented in our institution are in the late stages of disease that lead to some form of disability. Early-stage arthritis is considered to be the stage of synovitis and arthritis. This is characterized as periarticular demineralization, joint space widening due to effusion and mild subchondral erosion. Late-stage arthritis is considered as the stage of erosion and destruction. This is characterized as joint space narrowing, severe subchondral destruction and in some pathological subluxation and dislocation.[8] Tubercular arthritis is characteristically monoarticular and most commonly affects the spine and weight-bearing joints such as the knee, hip and ankle.[9] In our study, 14 out of 15 cases are presented as mono-articular type. Most of the pathologies were located at major weight-bearing areas such as the knee (6) and ankle joints (2).

The diagnosis of tuberculous arthritis is difficult because it can mimic an early mono-articular chronic inflammatory rheumatism, other granulomatous synovitis and pigmented villonodular synovitis.

All our cases had a bacteriological or histological confirmation after the diagnosis was suspected on the basis of chronic and destructive soft tissue or osteoarticular lesions. The diagnosis of TB arthritis is as challenging as the treatment. Still, the mainstay treatment remains anti-tuberculosis chemotherapy.[10]

Surgical procedures should be restricted to joints with severe cartilage destruction, joint deformity, large abscesses, multiple drug resistance or atypi-

cal mycobacteria.[11] Our operative indications depended on both clinical and radiological features. The study of Orillaza and Tacata showed that surgery can be done as a prognosticator and for preventive measures to improve function and further complications.[9] Hence, surgical management can be both diagnostic and therapeutic at the same time.

The series of surgically treated patients mostly presented in the late stages of the disease. In spite of this, the QoL is considered to be relatively high, especially for role emotional (mean: 93.33) and the lowest mean score was obtained for the bodily pain scale (mean: 69.2). The mean score in bodily pain is significantly higher in patients who underwent surgery in 2014 compared to 2016. Higher QoL in terms of pain can be observed in patients who underwent surgery 3 years ago compared to 1 year ago. The pain subscale was also higher compared to patients who underwent surgery 2 years ago but was not statistically significant. This can be attributed since patients usually present in the later stages of the disease and have already developed some form of damage to the bone, joint and soft tissues. Furthermore, the mean score in mental health is significantly higher in patients who underwent surgery in 2014 compared to 2016. There was higher QoL in terms of mental health that can be observed in patients who underwent surgery 3 years ago compared to a year ago. The mental health subscale was also higher compared to patients who underwent surgery 2 years ago, but not statistically significant. Mentally, the treatment of TB arthropathy can also be challenging. A longer course of medical treatment is warranted in these patients and compliance commonly is a problem. Recovery from the disability caused by bone, joint and soft tissue damage can also affect the QoL of these patients.

Looking into the details of items in the questionnaire allowed us a better evaluation in which aspects patients with TB arthritis were more affected. These may guide us in counseling patients on the functional aspects that are more likely to be impaired on their way to recovery even after the duration of treatment. On the other hand, patients treated surgically and medically have good QoL outcome scores. Moreover, it can be observed in our data that the highest mean score is exhibited by patients who underwent surgery in 2014 and lowest in patients who underwent surgery in 2016. This can be attributed to the longer time of recuperation.

## CONCLUSION

All patients have good QoL scores after surgery and complete medical treatment as demonstrated by the SF-36 scores. TB arthritis can affect the physical and mental aspects of patients. No significant difference in mean scores by year were seen in all the scales of the SF-36. Although it can be observed that the highest mean score is exhibited by patients who underwent surgery in 2014 and the lowest in patients who underwent surgery in 2016, that can be attributed to the longer period of recuperation. Patients can return to their functional capacity but can have some residual physical impairment.

## LIMITATIONS AND RECOMMENDATIONS

There are several limitations to this study. First, only a single-center review was done. Another limitation is the small number of patients. Due to the limited number of cases, only a few patients were selected to be included in the study. The present study also compared different sets of patients depending on the year of surgery. They suggest that future studies do a prospective cohort study or a multicenter study to collect more patients and increase the sample size to allow more in-depth analysis like for example factors affecting QoL.

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**SF-36v2  
Run-in Day 1**

**3. Ang mga sumusunod na katanungan ay tungkol sa mga aktibidad na maaari mong gawin sa karaniwang araw. Nalilimitahan ka ba ng kasalukuyang kalagayan ng iyong kalusugan sa mga aktibidad na ito? Kung oo, gaano?**

Oo, lubhang nalilimitahan	Oo, medyo nalilimitahan	Hindi, hindi nalilimitahan kahit kaunti
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- a. Nakakapagod na mga aktibidad, tulad ng pagtakbo, pagbuhat ng mga mabibigat na bagay, pagsali sa mga nakakapagod na laro .....  1 .....  2 .....  3
- b. Katamtamang mga aktibidad, tulad ng paggalaw ng mesa, pagwawalis, pag-bowling, o katamtamang pagbibisekleta .....  1 .....  2 .....  3
- c. Pagbuhat o pagdala ng mga pinamili .....  1 .....  2 .....  3
- d. Pag-akyat sa ilang hagdanan .....  1 .....  2 .....  3
- e. Pag-akyat sa isang hagdanan .....  1 .....  2 .....  3
- f. Pagbaluktot, pagluhod, o pagyuko.....  1 .....  2 .....  3
- g. Paglakad ng mahigit isan kilometro.....  1 .....  2 .....  3
- h. Paglakad ng ilang daang metro .....  1 .....  2 .....  3
- i. Paglakad ng isang daang metro .....  1 .....  2 .....  3
- j. Pagpaligo o pagbihis sa iyong sarili .....  1 .....  2 .....  3

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**SF-36v2  
Run-in Day 1**

**4. Sa nakaraang 4 na lingo, gaano kadalas na nagkaroon ka ng alin man sa mga sumusunod na problema sa iyong gawain o iba pang regular na pang araw-araw na aktibidad sanhi ng iyong pisikal na kalusugan?**

Lahat ng oras	Karamihan ng oras	Minsan-minsan	Bihira	Hindi kahit minsan
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- a. Bawasang ang dami ng oras na ginamit sa trabaho o iba pang mga aktibidad .....  1 .....  2 .....  3 .....  4 .....  5
- b. Nakatapos ng mas kaunti sa iyong ninanais ....  1 .....  2 .....  3 .....  4 .....  5
- c. Nalimitahan sa uri ng gawain o iba pang mga aktibidad .....  1 .....  2 .....  3 .....  4 .....  5
- d. Nahirapan sa peggawa ng trabaho o iba pang mga aktibidad (halimbawa, nangailangan ito ng dagdag na pagsisikap) ....  1 .....  2 .....  3 .....  4 .....  5

**5. Sa nakaraang 4 na lingo, gaano kadalas na nagkaroon ka ng alin man sa mga sumusunod na problema sa iyong gawain o iba pang regular na pang araw-araw na mga aktibidad sanhi ng ano mang emosyonal na mga problema (gaya ng katamlayan o pagkabalisa)?**

Lahat ng oras	Karamihan ng oras	Minsan-minsan	Bihira	Hindi kahit minsan
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- a. Bawasang ang dami ng oras na ginamit sa trabaho o iba pang mga aktibidad .....  1 .....  2 .....  3 .....  4 .....  5
- b. Nakatapos ng mas kaunti sa iyong ninanais ...  1 .....  2 .....  3 .....  4 .....  5
- c. Ginawa ang gawain iba pang mga aktibidad na kakaunti ang pag-iingat gaya ng karaniwan .....  1 .....  2 .....  3 .....  4 .....  5

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**SF-36v2**  
**Run-in Day 1**

**6. Sa nakaraang 4 na linggo, gaano nakasagabal ang iyong mga problemang pisikal o emosyonal sa iyong mga normal na panlipunang aktibidad kasama ng iyong pamilya, mga kaibigan, mga kapitbahay, o mga grupo?**

Hindi kahit kaunti	Medyo	Katamtaman	Malaki	Sukdulan
				
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**7. Gaano ang naging pananakit ng iyong katawan sa nakaraang 4 na linggo?**

Wala	Kaunting-kaunti	Kaunti	Katamtaman	Matindi	Napakatindi
					
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

**8. Sa nakaraang 4 na linggo, gaano nakasagabal ang pananakit sa iyong normal na gawain (kabilang ang gawain sa labas ng bahay at gawaing bahay)?**

Hindi kahit kaunti	Medyo	Katamtaman	Malaki	Sukdulan
				
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**SF-36v2**  
**Run-in Day 1**

**9. Ang mga tanong na ito ay tungkol sa kung ano ang iyong pakiramdam at ano ang iyong naging kalagayan sa nakaraang 4 na linggo. Sa bawat tanong, ibigay ang isang sagot na pinaka-akma sa iyong nararamdaman. Gaano kadalas sa nakaraang 4 na linggo...**

	Lahat ng oras	Karamihan ng oras	Minsan-minsan	Bihira	Hindi kahit minsan
					
a. Naramdaman mo bang punung-puno ka ng buhay? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
b. Ikaw ba ay naging napaka- neribiyoso? ....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
c. Nakaramdam ka ba na sukdulan ang iyong katamlayan na walang makapagpasaya sa iyo? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
d. Nakaramdam ka ba na ikaw ay kalmado at mapayapa? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
e. Nagkaroon ka ba ng maraming lakas na pisikal at mental? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
f. Nakaramdam ka ba na ikaw ay nasiraan ng loob at matamlay? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
g. Naramdaman mo bang ikaw ay naubusan ng lakas? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
h. Naging masaya ka ba? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
i. Naramdaman mo bang padog ka? .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**10. Sa nakaraang 4 na linggo, gaano kadalas nakasagabal ang iyong pisikal na kalusugan o mga problemang emosyonal sa iyong mga panlipunang aktibidad (gaya ng pagbisita sa mga kaibigan, kamag-anak, atbp.)?**

Lahat ng oras	Karamihan ng oras	Minsan-minsan	Bihira	Hindi kahit minsan
				
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

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**11. Gaano KA-TOTOO o HINDI TOTOO ang bawat isa sa mga sumusunod napahayag para sa iyo?**

	Tiyak na totoo	Karamihan ay totoo	Hindi alam	Karamihan ay hindi totoo	Tiyak na hindi totoo
	▼	▼	▼	▼	▼
a. Parang medyo mas madali akong magkasakit kumpara sa ibang tao .....	<input type="checkbox"/> 1 .....	<input type="checkbox"/> 2 .....	<input type="checkbox"/> 3 .....	<input type="checkbox"/> 4 .....	<input type="checkbox"/> 5
b. Ako ay kasing lusog ng sinumang taong kilala ko .....	<input type="checkbox"/> 1 .....	<input type="checkbox"/> 2 .....	<input type="checkbox"/> 3 .....	<input type="checkbox"/> 4 .....	<input type="checkbox"/> 5
c. Inaasahan ko na ang aking kalusugan ay lalala .....	<input type="checkbox"/> 1 .....	<input type="checkbox"/> 2 .....	<input type="checkbox"/> 3 .....	<input type="checkbox"/> 4 .....	<input type="checkbox"/> 5
d. Ang aking kalusugan ay lubhang napakabuti .....	<input type="checkbox"/> 1 .....	<input type="checkbox"/> 2 .....	<input type="checkbox"/> 3 .....	<input type="checkbox"/> 4 .....	<input type="checkbox"/> 5

***Salamat sa pagkumpleto sa mga katanungang ito!***