OBSERVATION AND RESULT

The present follow-up study (non-randomized) was based on 50 cases of intra-capsular fracture neck femur admitted to the Department of Orthopaedics, Govt. Medical College and Rajindra Hospital, Patiala. Elderly patients who had intra-capsular fracture neck of femur from the year 2009-2011 had been included in this follow-up study of Total Hip replacement and Bipolar (25 cases each). Patients who were having pre-existing sepsis, neuropathic arthropathy, weak abductors and other rapidly progressing diseases were excluded from this study. Total Hip replacement and Bipolar had been done in these cases and following observations were made:

Table 1: Showing Distribution of Age for PHR

Age in years	No of cases	%age
61-70	14	56%
71-80	7	28%
>80	4	16%
Total	25	100

The age varied from 61 years to more than 80 years. The maximum number of cases was in the 7th decade (56%) and minimum in 9th decade (16%) with an average age of 70.64 years.

Table 2: Showing distribution of age for THR

Age in years	No of cases	%age
61-70	14	56%
71-80	7	28%
>80	4	16%
Total	25	100

The age varied from 61 years to more than 80 years. The maximum number of cases was in the 7th decade (56%) and minimum in 9th decade (16%) with an average age of 67.4 years. (p value : NS)

Table 3: Age and sex distribution for PHR

Age (in yrs)	No. of Patients		%age
	Male	Female	
61-70	6	8	56%
71-80	3	4	28
>80	1	3	16%
Total	10	15	100

Table 4: Age and sex distribution for THR

Age (in yrs)	No. of Patients		%age
	Male	Female	
61-70	6	8	56%
71-80	3	4	28%
>80	1	3	16%
Total	10	15	100

There were 10 (40%) males and 15 (60%) females with a male: female ratio of 0.4: 0.6. (p value : NS)

Table 5: Showing cases with side affected for PHR

Side	No. of Cases	%age
Right	14	56%
Left	11	44%
Total	25	100

Right side was involved in 14 (56%) cases while left side in 11 (44%) cases.

Table 6: Showing cases with side affected for THR

Side	No. of Cases	%age
Right	10	40%
Left	15	60%
Total	25	100

Right side was involved in 10 (40%) cases while left side in 15 (60%) cases.

Table 7: Showing cases with various mode of injury IN PHR

Mode of injury	No. of Cases		Total	%age
	Male	Female		
Fall from cycle	1	-	1	4%
Slipping on floor	5	12	17	68%
Road traffic accidents	1	-	1	4%
Stumbling while walking on the floor	3	3	6	24%
Total	10	15	25	100

It has been found that trivial trauma such as slipping on floor or stumbling while walking on ground, fall from bed or cycle amounted for maximum number of cases. 23 cases (92%) having the role of senile osteoporosis as the major factor causing fracture.

Table 8: Showing cases with various mode of injury in THR

Mode of injury	No. of Cases		Total	%age
	Male	Female		
Fall from cycle	2	-	2	8%
Slipping on floor	6	9	15	60%
Road traffic accidents	-	-	-	-
Stumbling while walking on the floor	2	6	8	32%
Total	10	15	25	100

It has been found that trivial trauma such as slipping on floor or stumbling while walking on ground, fall from bed or cycle amounted for maximum number of cases. 23 cases (92%) having the role of senile osteoporosis as the major factor causing fracture.

Table 9: Duration of injury before operation for PHR

Time	No. of Cases	%age
Up to 1 week	22	88%
1 to 3 wks	2	8%
> 3 wks	1	4%
Total	25	100

Majority of 22 cases (88%) were operated within the first week following injury.

Table 10: Duration of injury before operation for THR

Time	No. of Cases	%age
Up to 1 week	21	84%
1 to 3 wks	3	12%
> 3 wks	1	4%
Total	25	100

Majority of 21 cases (84%) were operated within the first week following injury.Amongst the old cases, the maximum duration was 1 month. The delay in reporting for the definitive treatment was found to be due to the intervention by indigenous bonesetters. At times operation was delayed for a few days in the hospital because of the reason that the patients were not fit for anesthesia due to some associated medical causes like diabetes and hypertension.

All the cases were operated as planned elective surgery.

TYPE OF FRACTURE

Garden's classification has been used for fracture neck of femur and type of fracture has been matched as per tables:

Table 11: Type of fracture (garden) PHR

Fracture (Garden type)	No. of Cases	%age
I	-	-
II	-	-
III	12	48%
IV	13	52%
Total	25	100

Table 12: type of fracture (garden) THR

Fracture (Garden type)	No. of Cases	%age
I	-	-
II	-	-
III	12	48%
IV	13	52%
Total	25	100

In both groups, most of the cases 13 (52%) belonged to the type IV fractures, whereas only 12 (48%) of the cases were Garden type III fractures. None of the case was with impacted fracture (type I and II).

In two groups, the difference was statistically non-significant(p value >0.05).

Table 13: Pre-op patients showing shortening for PHR

Shortening	No. of Cases	%age
Less than 2 cm	23	92%
2 – 2.5 cm	2	8%
Total	25	100

Majority of the patients (92%) with intra-capsular fractures of neck of femur had less than 2 cm of shortening. There was shortening of 2 cms and 2½ cm in two cases.

Table 14: Pre-op patients showing shortening for THR

Shortening	No. of Cases	%age
Less than 2 cm	22	88%
2 – 2.5 cm	3	12%
Total	25	100

Majority of the patients (88%) with intra-capsular fracture neck of femur had less than 2 cm of shortening. There was shortening of 2 cms to 2½ cm in three cases.

Table 15: Post-Operative Blood Loss in PHR

Blood loss in ml	No. of Cases	%age
60-80	09	36%
80-100	13	52%
100-120	2	8%
120-140	1	4%

Average blood loss in PHR group found to be 85 ml.

Table 16: Post-Operative Blood Loss in THR

Blood loss in ml	No. of Cases	%age
60-80	02	8%
80-100	08	32%
100-120	12	48%
120-140	03	12%

Average blood loss in THR group found to be 108 ml.(p value: NS)

Table 17: Duration of Operation in PHR Group

Duration in min	No. of cases	%age
40-50	05	20%
50-60	15	60%
60-70	03	12%

70-80	02	08%
80-90	0	00%

So, average operating time for PHR found to be 52 minutes

Table 18: Duration of Operation in THR Group

Duration in min	No. of cases	%age
40-50	01	4%
50-60	05	20%
60-70	07	28%
70-80	10	40%
80-90	2	08%

So, average operating time for THR found to be 74 minutes. (p value : NS)

Table 19: Hospital stay of PHR

Days	Total cases
10-12	21
13-14	3
15-16	1

Average hospital stay of PHR found to be 11.6 days

Table 20: Hospital stay of THR

Days	Total cases
10-12	1
13-14	22
15-16	2

Average hospital stay of patients for THR cases found to be 13.2 days.(p value : NS)

Table 21: Unprotected Weight Bearing For PHR

Weeks	Total cases
3-4	22

4-5	3
5-6	0

Average period for unprotected weight bearing for PHR cases found to be 3.3 weeks

Table 22: Unprotected Weight Bearing For THR

Weeks	Total cases
3-4	4
4-5	18
5-6	3

Average period for unprotected weight bearing for THR cases found to be 4.3 weeks. (p value : NS)

Table 23: Follow up for Phr

Duration (months)	No. of Cases	%age
12-18	2	8%
18-24	23	92%

The patients were evaluated at the time of discharge, every month up to one year and every six months. The patients were followed up for a maximum of 22 months, with maximum number of cases in 18-24 months follow up period and average duration of follow-up was for 21.4 months. Only 2 cases left after a follow-up period of one and half year.

Table 24: Follow up for THR

Duration (months)	No. of Cases	%age
12-18	3	12%
18-24	22	88%

The patients were evaluated at the time of discharge, every month up to one year and every six months. The patients were followed up for a maximum of 22 months and the maximum number of cases in 18-24 months follow up period

and average duration of follow-up was for 20.8 months. Only 03 cases left the study at one and half year. (p value : NS)

Table 25: Comparison of Cost

	BIPOLAR	**THR**
Cost of implant (in Rs)	18000	18000
Cost of medicines (in Rs)	2500	2500
Avg. hospital stay	11.6 days	13.2 days
Total cost	20500	20500

During this study, the cost of Bipolar and THR is comparable about Rs 20500/- including cost of implant, medicines but having prolonged hospital stay in THR. (p value : NS)

Table 26: Comparison of Pain in PHR

Salvati pain score	**Post-operative days**								
	1	7	15	30	60	90	180	1 yr	>1 ½ yr
0	2	-	-	-	-	-	-	-	-
2	23	3	1	-	-	-	-	-	-
4	-	22	4	3	-	-	-	-	-
6	-	-	20	16	4	-	-	-	-
8	-	-	-	6	21	2	-	-	-
10	-	-	-	-	-	23	25	25	25

Table 27: Comparison of Pain in THR

Salvati pain score	**Post-operative days**								
	1	7	15	30	60	90	180	1 yr	>1 ½ yr
0	4	1	-	-	-	-	-	-	-
2	21	24	4	2	-	-	-	-	-
4	-	-	21	4	1	-	-	-	-
6	-	-	-	19	20	3	-	-	-
8	-	-	-	-	4	22	3	-	-
10	-	-	-	-	-	-	22	25	25

The Salvati pain grade of 0 i.e. unbearable and relieved with strong medication was reported in 02 patients (8%) on 1st post–operative day in PHR as compared to 04 patients (16%) in THR group. During more than one and half year follow–up, there was no significant difference in the both groups (p value: NS). O2 cases in PHR and 03 cases in THR left at more than 11/2 yrs.

Table 28: Comparison of Functional Status in PHR

Salvati functional score	Post-operative days							
	7	15	30	60	90	180	1 yr	>1 ½ yr
0	25	23	-	-	-	-	-	-
2	-	2	23	2	-	-	-	-
4	-	-	2	21	-	-	-	-
6	-	-	-	2	2	-	-	-
8	-	-	-	-	23	-	-	-
10	-	-	-	-	-	25	25	25

Table 29: Comparison of Functional Status in THR

Salvati functional score	Post-operative days							
	7	15	30	60	90	180	1 yr	>1 ½ yr
0	25	24	1	-	-	-	-	-
2	-	1	24	21	-	-	-	-
4	-	-	-	3	18	-	-	-
6	-	-	-	1	4	-	-	-
8	-	-	-	-	3	23	-	-
10	-	-	-	-	-	2	25	25

Almost all cases were confined to bed up to 7th day in both groups (partial weight bearing on 5th day). But during further follow-up, up to 23 patients (92%) were partial dependent in PHR as compared to 24 patients (96%) were partial dependent in THR, with one patient having dislocation being confined to bed up to 6 weeks. All the 25 patients (100%) were having full functional

status in PHR as compared to 23 cases (92%) in THR at 180 days. O2 cases in PHR and 03 cases in THR left at more than 11/2 yrs.

Table 30:Motion Chart in PHR

Salvati Motion score	**Post-operative days**							
	7	15	30	60	90	180	1 yr	>1 ½ yr
0	-	-	-	-	-	-	-	-
2	2	-	-	-	-	-	-	-
4	23	22	-	-	-	-	-	-
6	-	3	21	5	-	-	-	-
8	-	-	4	20	23	0	-	-
10	-	-	-	-	2	25	25	25

Table 31: Comparison of Motion in THR

Salvati Motion score	**Post-operative days**							
	7	15	30	60	90	180	1 yr	>1 ½ yr
0	-	-	-	-	-	-	-	-
2	3	1	1	1	-	-	-	-
4	22	21	5	3	1	-	-	-
6	-	3	19	18	2	-	-	-
8	-	-	-	3	20	2	-	-
10	-	-	-	-	2	23	25	25

At 90th day, 23 cases (92%) in PHR were having motion status grade 8 as compared to 20 cases (80%) in THR. During further follow-up on 180th day all patients in PHR were having normal power and motion as compared to 23 cases (92%) in THR group. O2 cases in PHR and 03 cases in THR left at more than 11/2 yrs.

Table 32: Salviti hip score for PHR

Duration	Salvati Hip Score				Total
	<15 Gp I	16-23 Gp II	24-31 Gp III	>32 Gp IV	
At discharge	-	17	8	-	25
One month	-	-	25	-	25
03 months	-	-	22	3	25
06 months	-	-	5	20	25
1 year			1	24	23
At 1½ year				25	25
More than 1½				23 (02 cases left)	23

Out of 25 patients in this study, 17 cases (68%) had shown fair results and 8 cases (32%) good results at the time discharge. 22 patients (88%) had shown good results, 3 patients (12%) had shown excellent results at 03 months of follow-up. After an interval of one and half year 25 cases (100%) had shown excellent results.

Table 33: Salviti Hip Score For THR

Duration	Salvati Hip Score				Total
	<15 Gp I	16-23 Gp II	24-31 Gp III	>32 Gp IV	
At discharge	1	9	15	-	25
One month	1	-	24	-	25
03 months	-	1	15	9	25
06 months	-	-	7	18	25
One year			2	23	23
At one and half year			2	23	25
More than one and half year				22(03 cases left)	22

Out of 25 patients in this study, at time of discharge 01 case had shown poor results due to dislocation, whereas 9 cases fair, 15 cases had good results. At 03 months 01 case had fair, 15 cases good and 09 cases had shown excellent results, but at 06 months 07 cases (28%) had shown good results and 18 cases (72%) excellent results. At an interval of one and half year 02(8%) cases had good and 23 cases (92%) had shown excellent results. In two groups, the difference was statistically non-significant.

(p value >0.05).

COMPLICATIONS for PHR

02 patients developed urinary tract infection which was successfully managed by catheter removal and proper antibiotic coverage.

No patients had developed superficial wound infection at stitch site. 01 patient develops leg length discrepancy of 2 cm which was managed by giving shoe raise.

COMPLICATIONS for THR

02 patients developed urinary tract infection which was successfully managed by catheter removal and proper antibiotic coverage. 01 patient had developed superficial wound infection at stitch site which was managed successfully by conservative treatment.

01 patient develops paralytic illeus and that patient was managed conservatively.

01 patient had developed traumatic dislocation and that was managed by closed reduction and traction for 6 weeks.

02 patients had developed leg length discrepancy of 2 cm which was managed by giving shoe raise.

Table 34: General complications for PHR

Complications	No. of Cases	%age
No complication	23	92
Pleurisy	-	-
Broncho-pneumonia	-	-
Cardiac failure	-	-
Pulmonary embolism	-	-
Coronary occlusion	-	-
Fat embolism	-	-
Paralytic illeus	-	-
Urinary infection	2	8
Total	25	100

Table 35: General Complications for THR

Complications	No. of Cases	%age
No complication	22	88
Pleurisy	-	-
Broncho-pneumonia	-	-
Cardiac failure	-	-
Pulmonary embolism	-	-
Coronary occlusion	-	-
Fat embolism	-	-
Paralytic illeus	1	4
Urinary infection	2	8
Total	25	100

In two groups, the difference was statistically non-significant. (p value >0.05).

Table 36: Local complications for PHR

Complications	No. of Cases	%age
No complication	24	96
Superficial wound infection	0	0
Deep wound infection	0	0
Heterotrophic ossification	0	0
Dislocation (traumatic)	0	0
Loosening of cup	0	0
Loosening of femoral stem	0	0
Deep vein thrombosis	0	0
Common peroneal nerve palsy	0	0
Femoral fracture	0	0
Vascular injury	0	0
Leg length discrepancy	1	4
Mortality	0	0

Table 37: Local complications for THR

Complications	No. of Cases	%age
No complication	21	84
Superficial wound infection	1	4
Deep wound infection	0	0
Heterotrophic ossification	0	0
Dislocation (traumatic)	1	4
Loosening of cup	0	0
Loosening of femoral stem	0	0
Deep vein thrombosis	0	0
Common peroneal nerve palsy	0	0
Femoral fracture	0	0
Vascular injury	0	0
Leg length discrepancy	2	8
Mortality	0	0

In these two groups, the difference was statistically non-significant. (p value >0.05).

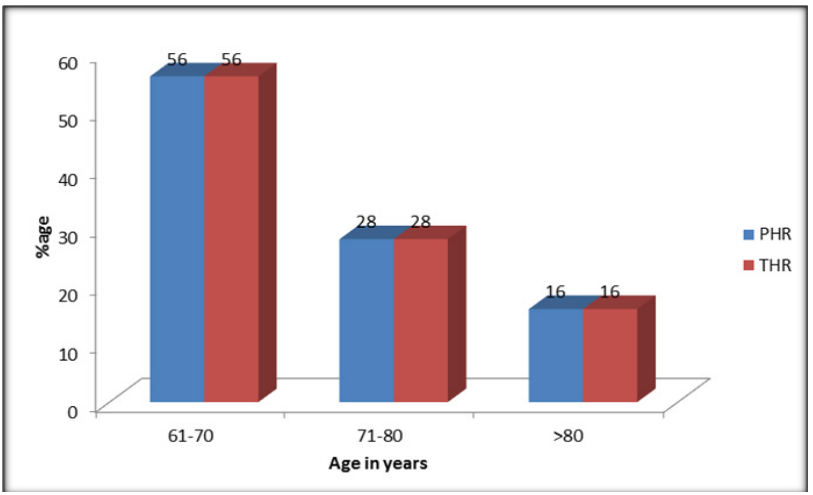
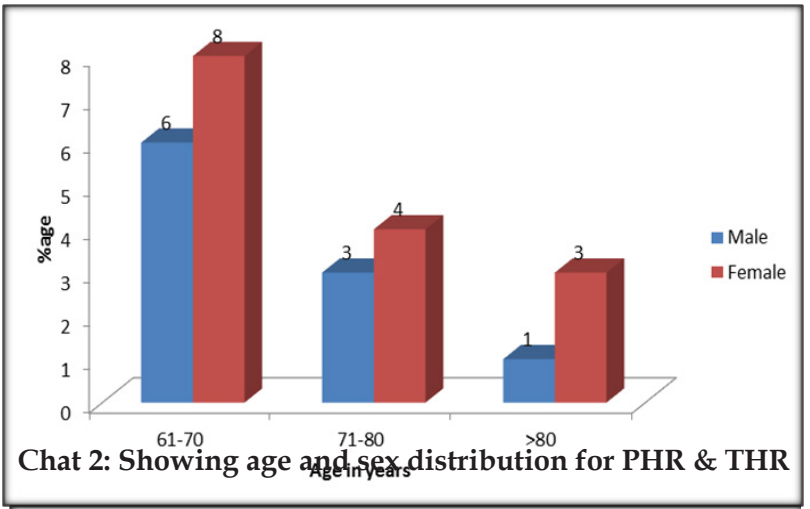
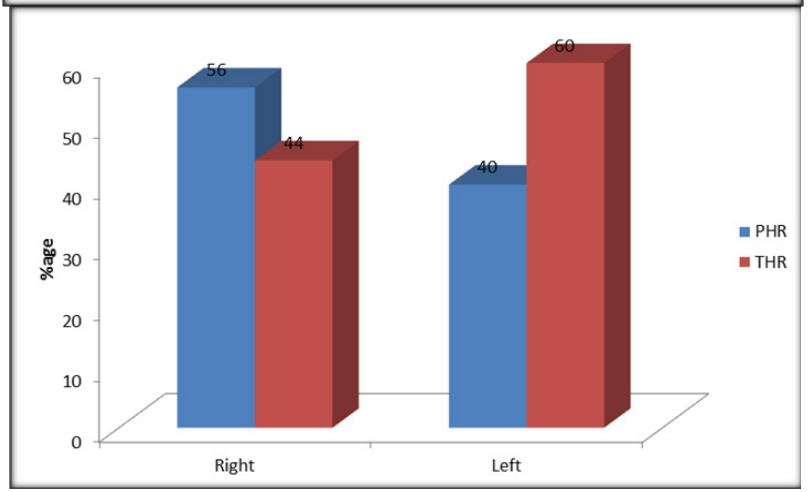


Chart 1: Comparison of Age for PHR & THR



Chat 2: Showing age and sex distribution for PHR & THR



Chat 3: Comparison of sides for PHR & THR

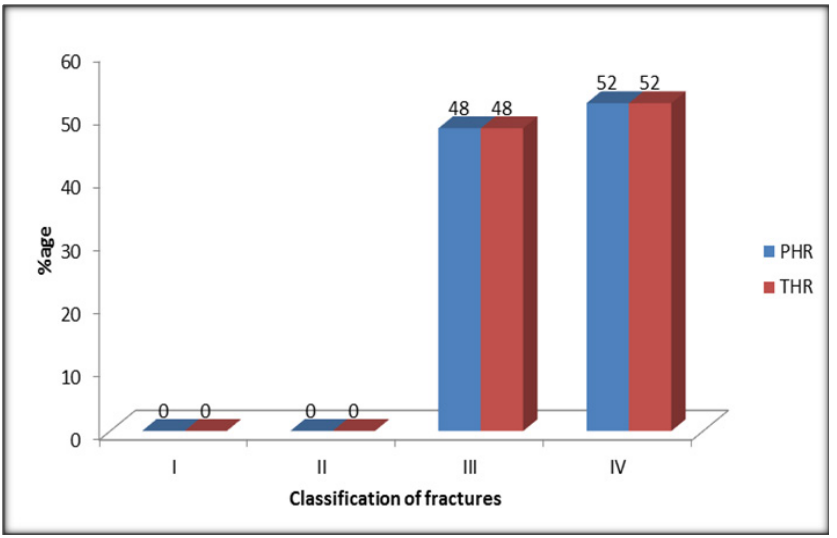


Chart 5: Comparison of Hospital stay for PHR & THR

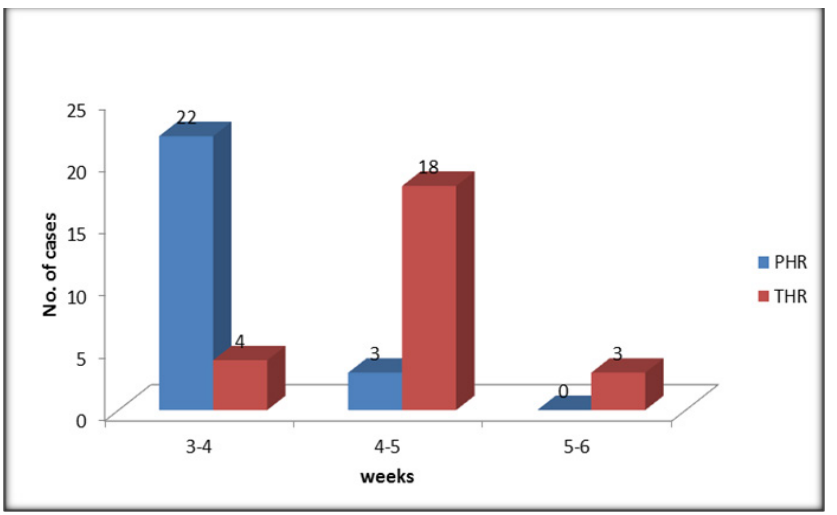


Chart 6: Comparison of unprotected weight bearing for PHR & THR

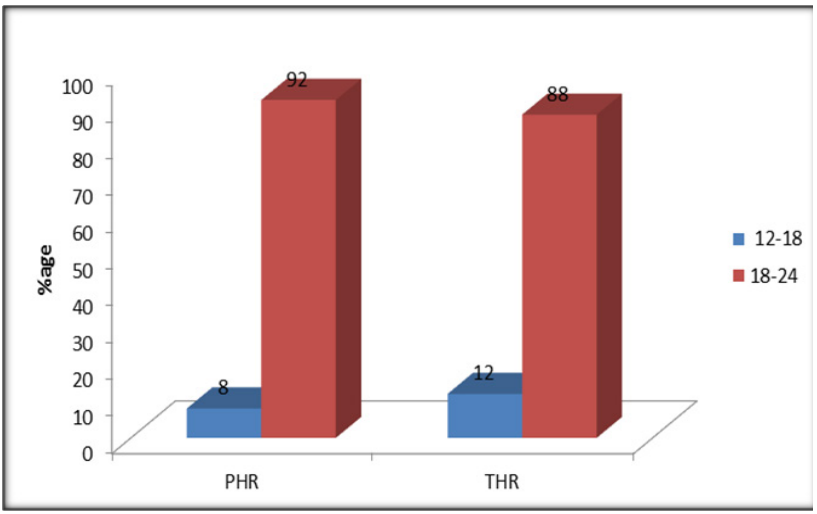


Chart 7: Comparison of follow-up for PHR & THR

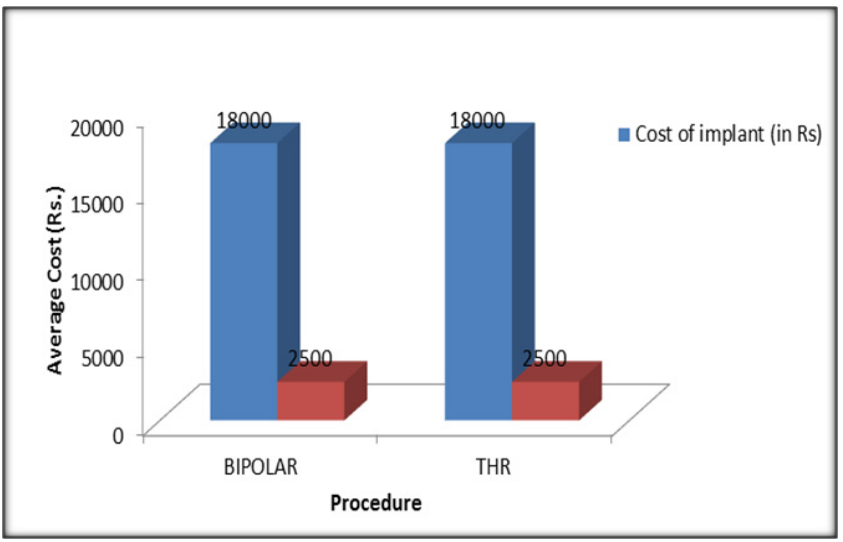


Chart 8: Comparison of cost for PHR & THR

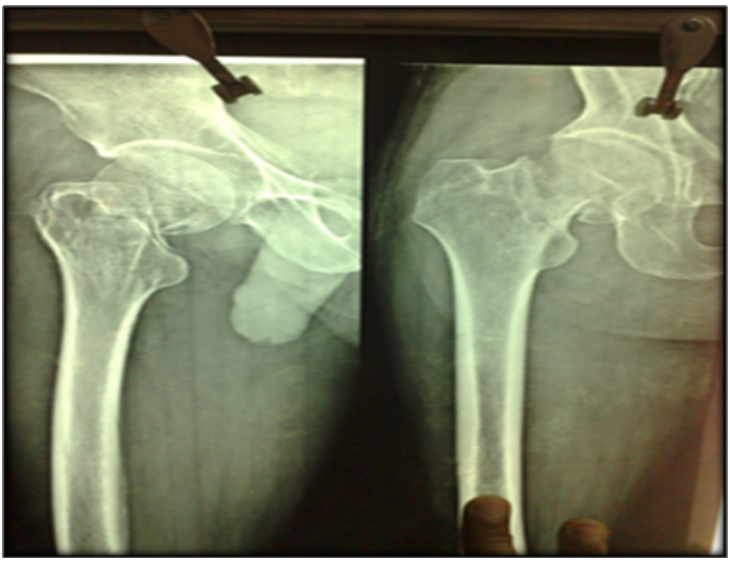


Figure 1: Pre-Operative

Figure 2: Post –Operative

Figure 3: post-op standing

Figure 4: postop sitting

Figure 5: Pre-Operative

Figure 6: Post –Operative

Figure 7: Post-op sitting

Figure 8: Post-op standing

Figure 9: Pre-Operative

Figure 10: Post –Operative

Figure 11: post op standing

Figure 12: Post-op sitting

Figure 13: Pre-Operative

Figure 14: Post –Operative

Figure 15: Post -op standing

Figure 16: Post-op standing

Figure 17: Pre-Operative

Figure 18: Post –Operative

Figure 19: Post-op standing

Figure 20: Post-op standing

Figure 21: Pre-Operative

Figure 22: Post –Operative

Figure 23: Post-op sitting

Figure 24: Post-op standing

Figure 25: Pre-Operative

Figure 26: Post –Operative

Figure 27: Post -op Sitting with Scar

Figure 28: Post-op standing