

## Results

The results was calculated and evaluated according to the modified Harris Hip score preoperatively and at the end of the study.

The total modified Harris Hip score was 207.5, and was graded as follows;

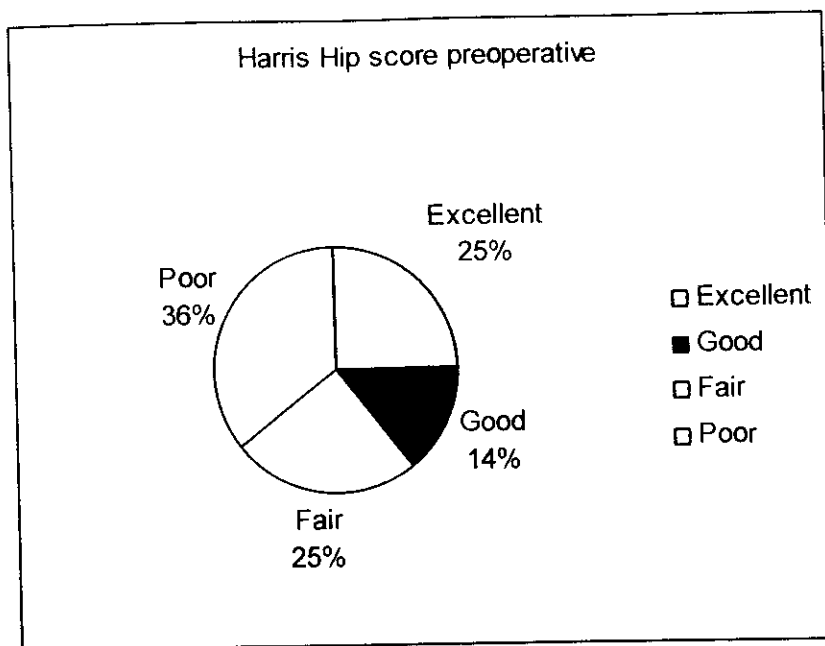
- ❖ Excellent from 207.5 to 186.5.
- ❖ Good from 186.5 to 166.
- ❖ Fair from 166 to 145.5.
- ❖ Poor below 145.5.

Where excellent and good results were considered satisfactory, and fair and poor results was considered unsatisfactory.

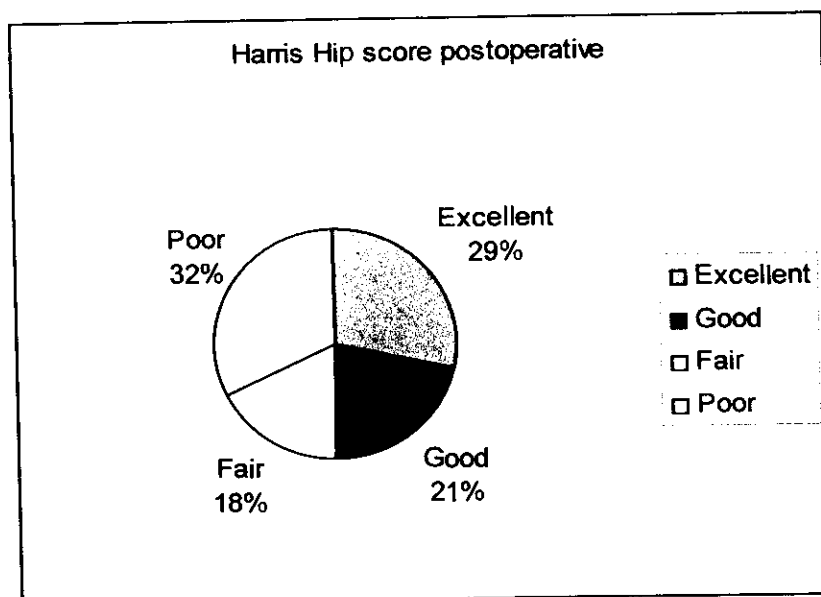
Assessment of the patients preoperatively using the modified Harris Hip score results in 7 patients excellent (25%), 4 good (14%), 7 fair (25%), and 10 poor (36%). And at the end of the study by 24 months postoperative results in the following results; 8 patients was excellent (29%), 6 was good (21%), 5 was fair (18%), and 9 was poor (32%).

Modified HHS	Preoperative	End of the study
Excellent	7	8
Good	4	6
Fair	7	5
Poor	10	9

**Table 10.1:** Assessment of results preoperative and at the end of the study



**Chart 10.1:** chart showing the percentage of results of the modified Harris hip score preoperatively



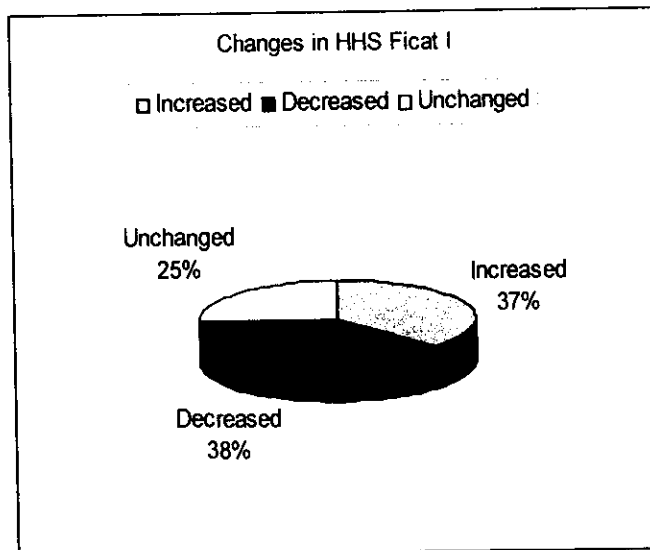
**Chart 10.2:** chart showing the percentage of results of the modified Harris hip score preoperatively

The Harris Hip score increased in 14 patients, decreased in 12 patients, and remained unchanged in 2 patients.

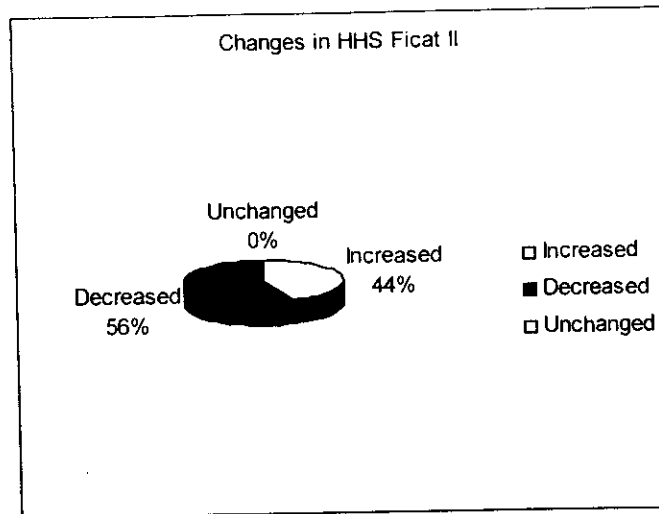
The average increase was 26.607 points, and the average decrease was 22.208 points on the Harris Hip score.

<b>HHS</b>	<b>Increased</b>	<b>Decreased</b>	<b>Unchanged</b>
Ficat I	3	3	2
Ficat II	7	9	
Ficat III	3	1	

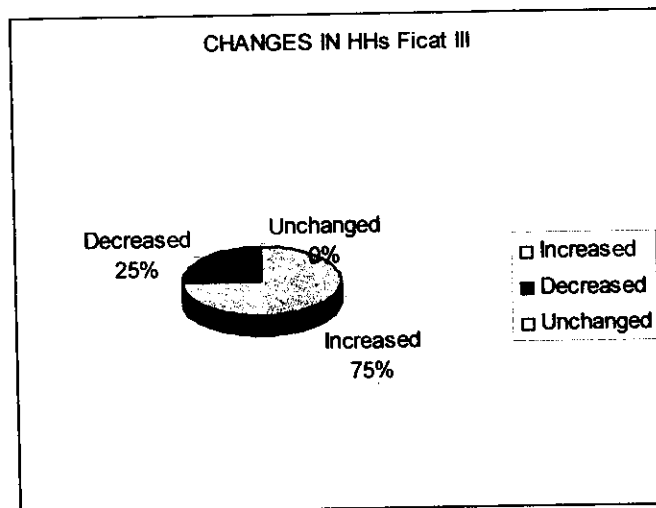
**Table 10.2:** changes in HHS at different stages



**Chart 10.3:** Showing the changes in HHS in Ficat & Arlet stage I cases



**Chart 10.4:** Showing the changes in HHS in Ficat & Arlet satge II cases



**Chart 10.5:** Showing the changes in HHS in Ficat & Arlet satge III cases

Statistical analysis of the data (Harris Hip score) preoperative and at the end of the study at 24 months postoperative using paired sample correlation test and paired sample T test was done for all the cases at different stages of diagnosis, and at each stage individually, and results in the following;-

All cases at different stages of diagnosis.

The mean of Harris Hip score preoperative and postoperative was 155.518, and 159.554 respectively.

Paired Samples Statistics (Table 10.3)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	harris hip score pre op	155.518	28	30.0917	5.6868
	24 mth	159.554	28	30.9675	5.8523

- Paired sample correlation test for all cases at different stages of diagnosis preoperatively was 0.003 which is highly significant, and means that there is strong correlation between the score preoperative and postoperatively.

Paired Samples Correlations (Table 10.4)

		N	Correlation	Sig.
Pair 1	harris hip score pre op & 24 mth	28	.535	.003

- Paired sample T test for all cases at different stages of diagnosis preoperatively was 0.474 which is statistically insignificant.

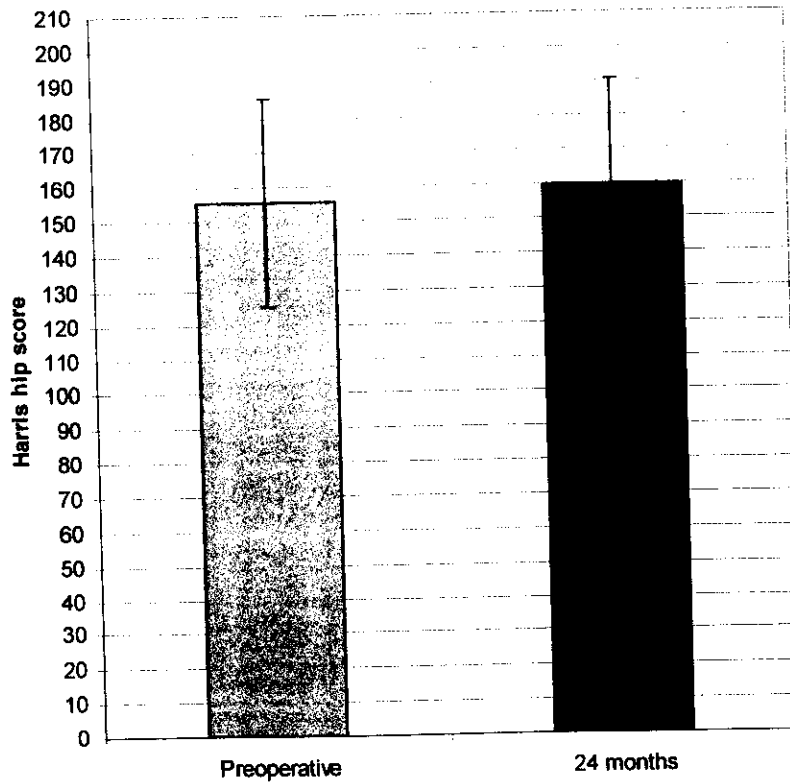
# Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	harris hip score pre op - 24 mth	-4.0357	29.4379	5.5632	-15.4505	7.3791	-.725	27	.476

**Table 10.5:** Paired sample test at all stages

This means that there is strong correlation but there is no statistical significance between the score preoperatively and postoperative.

## Ficat all stages



**Chart 10.6:** The mean of standard deviation preoperative and postoperative

### Ficat and Arlet stage I

The mean of Harris Hip score at stage I Ficat and Arlet preoperative, and postoperative was 182.313, and 180.438 respectively.

**Paired Samples Statistics Ficat&Arlet I. (Table 10.6)**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	harris hip score pre op	182.313	8	17.5925	6.2199
	24 mth	180.438	8	21.0109	7.4285

- Paired sample correlation test for cases diagnosed as stage I Ficat and Arlet and perform the decompression procedure at this stage was 0.818, which is highly significant.

**Paired Samples Correlations Ficat&Arlet I. (Table 10.7)**

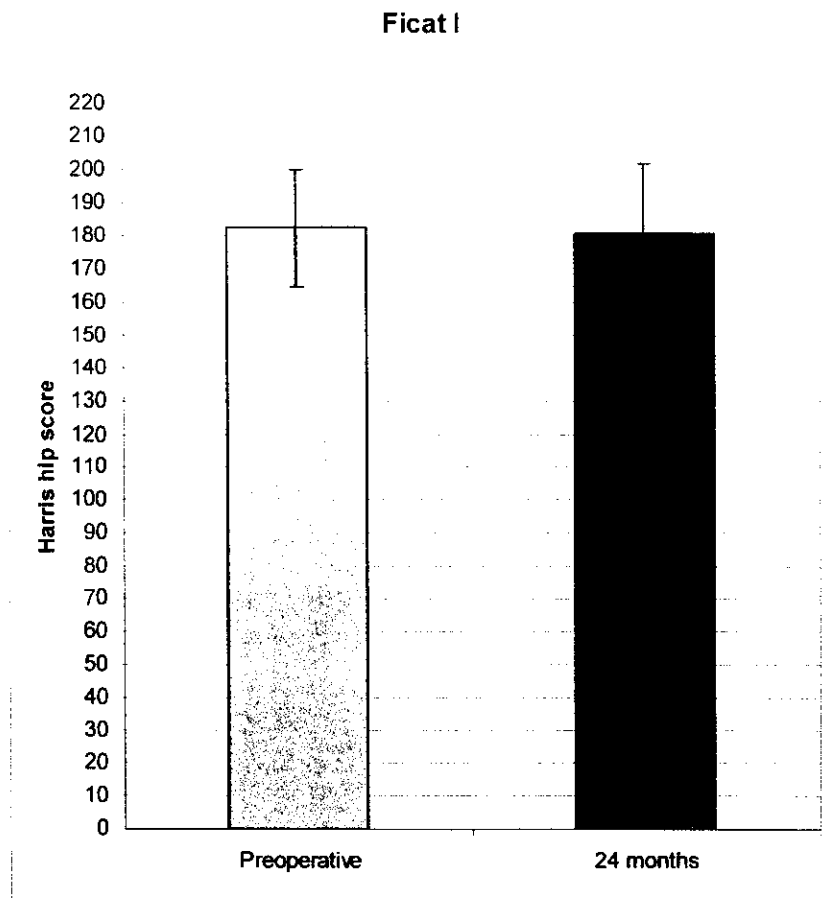
		N	Correlation	Sig.
Pair 1	harris hip score pre op & 24 mth	8	.818	.013

- Paired sample T test for the mentioned cases at stage I Ficat and Arlet was 0.674 which is statistically insignificant.

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	harris hip score pre op - 24 mth	1.8750	12.0794	4.2707	-8.2236	11.9736	.439	7	.674

**Table 10.8: Paired sample tests Ficat & Arlet I**



**Chart 10.7:** The mean of standard deviation preoperative and postoperative in Ficat and Arlet stage I

### **Ficat and Arlet stage II**

The mean of Harris Hip score at stage II Ficat and Arlet preoperative and postoperative was 147.563, and 152.063 respectively.



Paired Samples Statistics Ficat&Arlet II (Table 10.9)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	harris hip score pre op	147.563	16	25.6202	6.4051
	24 mth	152.063	16	30.4362	7.6091

- Paired sample correlation test for cases diagnosed as stage II Ficat and Arlet and perform the decompression procedure at this stage was 0.691, which is not statistically significant.

Paired Samples Correlations Ficat&Arlet II (Table 10.10)

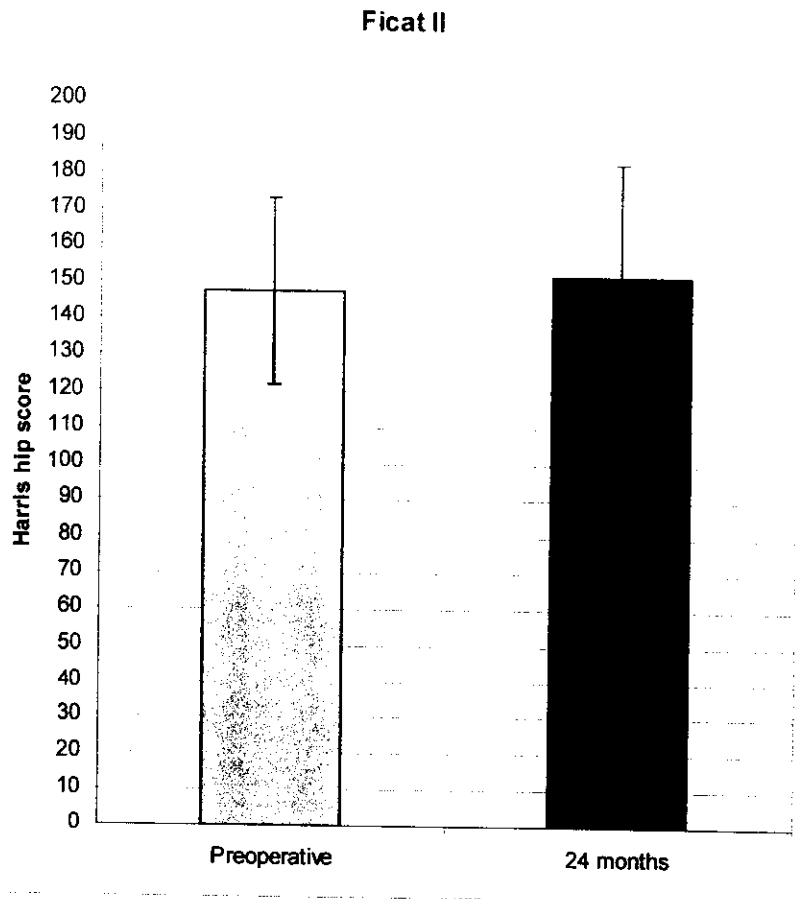
		N	Correlation	Sig.
Pair 1	harris hip score pre op & 24 mth	16	.108	.691

- Paired sample T test for the mentioned cases at stage II Ficat and Arlet was 0.639 which is statistically insignificant.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tail)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	harris hip score pre op - 24 mth	-4.5000	37.6143	9.4036	-24.5432	15.5432	-4.79	15	

Table 10.11: Paired sample tests Ficat & Arlet II



**Chart 10.8:** The mean of standard deviation preoperative and postoperative in Ficat and Arlet stage II

### **Ficat and Arlet stage III**

The mean of Harris Hip score at stage III Ficat and Arlet preoperative and postoperative was 133.750, and 147.750 respectively.

Paired Samples Statistics Ficat&Arlet III (Table 10.12)

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 harris hip score pre op	133.750	4	35.5188	17.7594
24 mth	147.750	4	36.3444	18.1722

- Paired sample correlation test for cases diagnosed as stage III Ficat and Arlet and perform the decompression procedure at this stage was 0.61, which is statistically significant.

Paired Samples Correlations Ficat&Arlet III (Table 10.13)

	N	Correlation	Sig.
Pair 1 harris hip score pre op & 24 mth	4	.939	.061

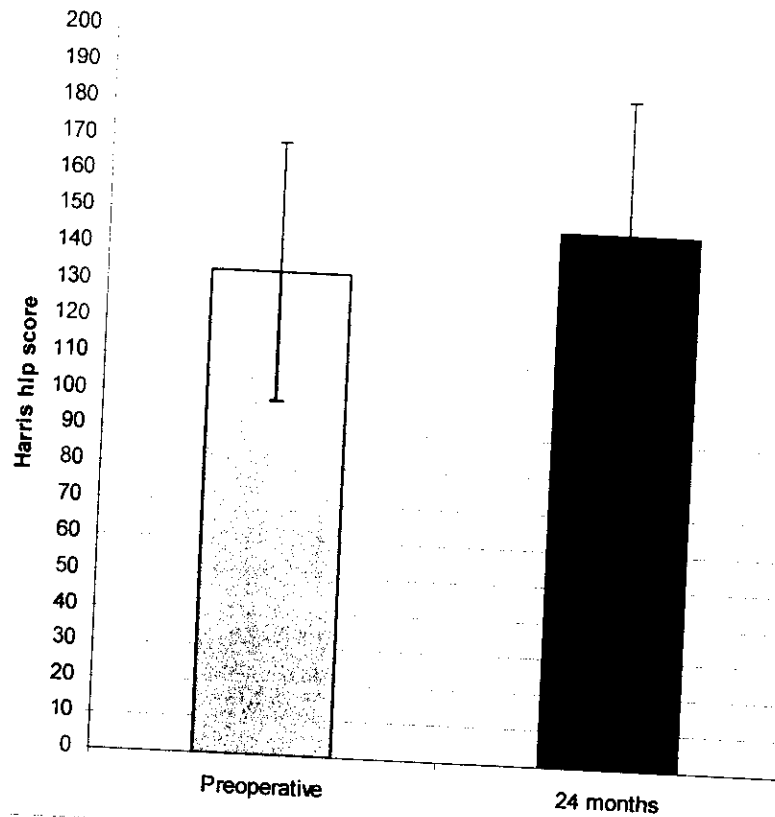
- Paired sample T test for the mentioned cases at stage III Ficat and Arlet was 0.112 which is statistically insignificant.

Paired Samples Test

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tail)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	harris hip score pre op - 24 mth	-14.0000	12.5698	6.2849	-34.0014	6.0014	-2.228	3	

Table 10.14: Paired sample tests Ficat & Arlet III

### Ficat III



**Chart 10.9:** The mean of standard deviation preoperative and postoperative in Ficat and Arlet stage III

Results in Ficat stage I 75% satisfactory results (62.5% excellent, 12.5% good) and 25% unsatisfactory (25% fair).

Results in stage II 41.2% satisfactory (11.7% excellent, 29.4% Good) and 58.8% unsatisfactory (23.5% fair, and 35.2% poor)

Results in stage III 50% satisfactory (50% good result) and 50% unsatisfactory (50 % poor).

## Example of Cases

### • Case 1 and 2

#### I. Personal history.

- H. Name: Noha Adel Elshaarawy
- I. Age: 34 years old
- J. Sex: female

#### Complaint.

History of left hip pain following intake of phenadone syrup for one month for allergic bronchitis. On clinical examination there were no rotational deformities in the left lower limb on inspection, full range of flexion, external, internal rotation

Plain x-ray on both hip joints shows no abnormality, MRI revealed bilateral avascular necrosis of the femoral head, and was classified according to Ficat and Arlet as Left hip stage 2, Right hip Stage 1, and scored according to harris hip score. Core decompression was done for both femoral heads at the same setting, followed by protected weight bearing on walker for 6 weeks and followed up at 2 weeks, 6 weeks, 6 months, 12 months, 18 months, and 24 months.

### Harris Hip score for left hip

#### 5. Pain (44 possible)

	Score	Pre-op	2 wks	6 wks	6 mth	12mth	18 mth	24 mth
A. None, or ignores it	44		44	44			44	44
B. Slight, occasional, no limitation in activities	40				40	40		
C. Mild pain, no effect on activities, rarely moderate pain with unusual activity, may take aspirin	30	30						
D. Moderate pain, tolerable but makes concessions to pain. Some limitation of ordinary activity or work. May require occasional medication stronger than aspirin	20							
E. Marked pain, serious limitation of activities	10							
F. Totally disabled, crippled, pain induced, bedridden	0							

6. Function (47 possible)

2.A. Gait (33 possible)	Score	Pre-op	2 wks	6 wks	6 mth	12mt h	18 mt h
			11	11	11	11	11

2.A.1. Limp:

a. None	11	
b. Slight	8	
c. Moderate	5	5
d. Severe	0	

2.A.2. Support:

a. None	11	11	11	11	11	11	11
b. Cane for long walks	7						
c. Cane most of the time	5						
d. One crutch	3						
e. Two canes	2						
f. Two crutches	0						
g. Not able to walk	0						

2.B. Activities (14 possible)

2.B.1. Stairs:

a. Normally	4					4	4
b. Using railing	2	2	2	2	2		
c. In any manner	1						
d. Unable to do stairs	0						

2.B.2. Shoes & Socks:

a. With ease	4					4	4
b. With difficulty	2	2	2	2	2		
c. Unable	0						

2.B.3. Sitting:

a. Any chair one hour	5	5	5	5	5	5	5
b. Any chair half hour	3						
c. Unable to sit comfortably	0						

2.B.4 Enter public transport

	1	1	1	1	1	1	1
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7. Absence of Deformity (4 points each if present)

	PRE- OP	2 WKS	6 WKS	6 MTH	12MTH	18 MTH	24 MTH
A. Less than 30 degrees fixed flexion contracture	4	4	4	4	4	4	4
B. Less than 10 degrees fixed adduction	4	4	4	4	4	4	4
C. Less than 10 degrees fixed internal rotation in extension.	4	4	4	4	4	4	4
D. Limb length discrepancy less than 3.2 cm.	4	4	4	4	4	4	4

8. Range of Motion

			Pre-op	2 wks	6 wks	6mth	12mt	18 mth
	Arc of Motion	Index	Max. possibl e					
Flexion	0-45°(45°)	1.0	45	45	45	45	45	45
	45-90°(45°)	0.6	27	27	27	27	27	27
	90-110°(20°)	0.3	6	6	6	6	6	6
	110-130°(20°)	0.0	0					
Abduction	0-15°(15°)	0.8	12	12	12	12	12	12
	15-20°(5°)	0.3	1.5	1.5	1.5	1.5	1.5	1.5
	20-45°(25°)	0.0	0					
E.R. in extension	0-15°	0.4	6	6	6	6	6	6
	Over 15°	0.0	0					
I.R. in extension	Any	0.0	0					
	0-15°	0.2	3	3	3	3	3	3
Adduction	Over 15°	0.0	0					
	Any	0.0	0					
Extension	Any	0.0	0					

Total HHS

1925 1925 1925 1925 1925 1925 1925

## Harris Hip score for the right hip

### 9. Pain (44 possible)

	Score	Pre-op	2 wks	6 wks	6 mth	12mth	18 mth	24 mth
A. None, or ignores it	44	44	44	44	44	44	44	44
B. Slight, occasional, no compromise in activities	40							
C. Mild pain, no effect on activities, rarely moderate pain with unusual activity, may take aspirin	30							
D. Moderate pain, tolerable but makes concessions to pain. Some limitation of ordinary activity or work. May require occasional medicine stronger than aspirin	20							
E. Marked pain, serious limitation of activities	10							
F. Totally disabled, crippled, pain in bed, bedridden	0							

### 10. Function (47 possible)

#### 2.A. Gait (33 possible)

	Score	Pre-op	2 wks	6 wks	6 mth	12mth	18 mth
2.A.1. Limp:							
a. None	11	11	11	11	11	11	11
b. Slight	8						
c. Moderate	5						
d. Severe	0						

#### 2.A.2. Support:

	Score	Pre-op	2 wks	6 wks	6 mth	12mth	18 mth
a. None	11	11	11	11	11	11	11
b. Cane for long walks	7						
c. Cane most of the time	5						
d. One crutch	3						
e. Two canes	2						
f. Two crutches	0						
g. Not able to walk	0						



## 2.B. Activities (14 possible)

### 2.B.1. Stairs:

	a. Normally	4						
	b. Using railing	2	2	2	2	2	2	2
2	c. In any manner	1						
	d. Unable to do stairs	0						

### 2.B.2. Shoes & Socks:

	a. With ease	4			4	4	4	4
	b. With difficulty	2	2	2				
	c. Unable	0						

### 2.B.3. Sitting:

	a. Any chair one hour	5	5	5	5	5	5	5
	b. High chair half-hour	3						
	c. Unable to sit comfortably	0						

### 2.B.4 Enter public transport

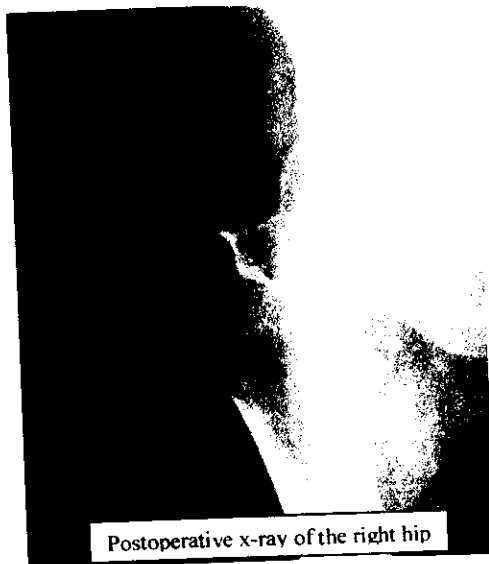
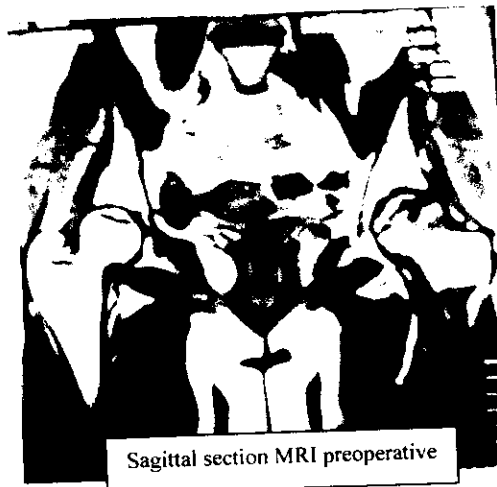
1	1	1	1	1	1	1	1
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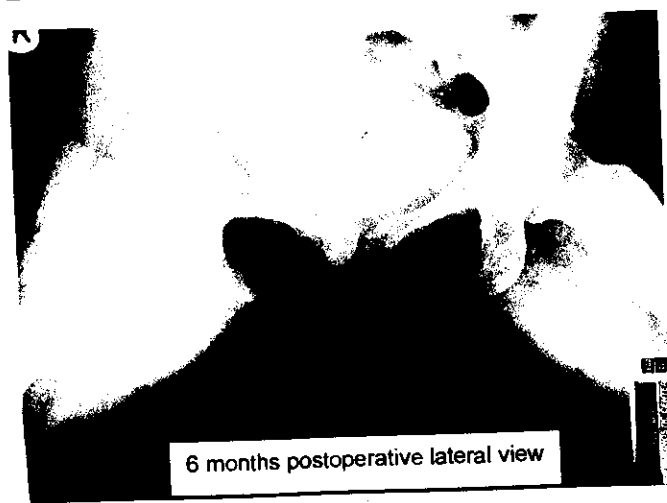
## 11. Absence of Deformity (4 points each if present)

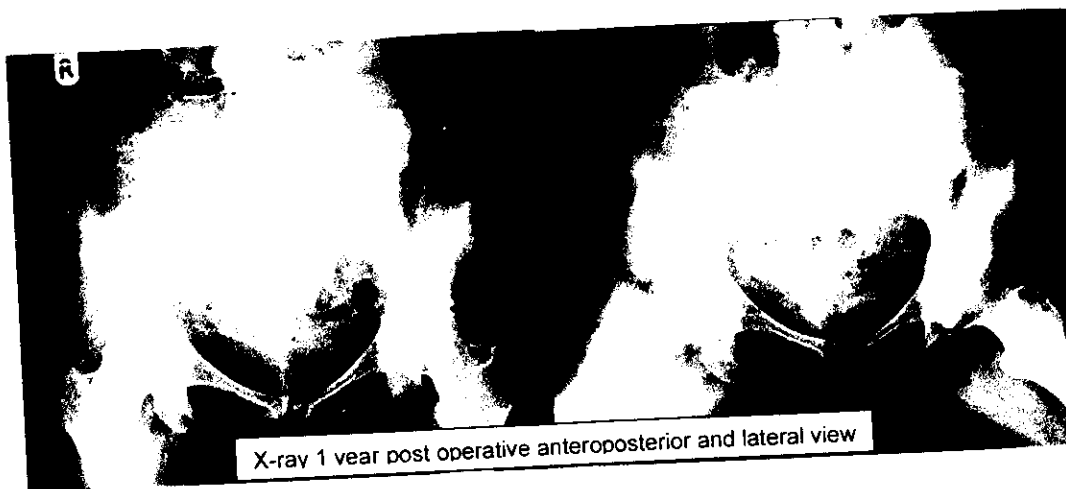
	PRE-OP	2 WKS	6 WKS	6 MTH	12MTH	18 MTH	24 MTH
A. Less than 30 degrees fixed flexion contracture	4	4	4	4	4	4	4
B. Less than 10 degrees fixed adduction	4	4	4	4	4	4	4
C. Less than 10 degrees fixed internal rotation in extension.	4	4	4	4	4	4	4
D. Limb length discrepancy less than 2 cm	4	4	4	4	4	4	4

## 12. Range of Motion

				Pre- op	2 wks	6 wks	6 mth	12 mth	18 mth	24 mth
	Arc of Motion	Index	Max. possible							
Flexion	0-45°(45°)	1.0	45	45	45	45	45	45	45	45
	45-90°(45°)	0.6	27	27	27	27	27	27	27	27
	90-110°(20°)	0.3	6	6	6	6	6	6	6	6
	110-130°(20°)	0.0	0							
Abduction	0-15°(15°)	0.8	12	12	12	12	12	12	12	12
	15-20°(5°)	0.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	20-45°(25°)	0.0	0							
	0-15°	0.4	6	6	6	6	6	6	6	6
E.R. in extension	Over 15°	0.0	0							
I.R. in extension	Any	0.0	0							
Adduction	0-15°	0.2	3	3	3	3	3	3	3	3
	Over 15°	0.0	0							
Extension	Any	0.0	0							
Total Motion Point Value = 100.5				175.5	175.5	177.5	177.5	179.5	179.5	181.5
Total HHS										







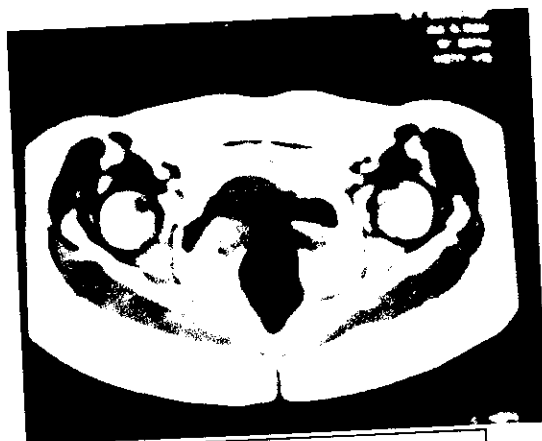
X-ray 1 year post operative anteroposterior and lateral view



Anteroposterior x-ray 18 months postoperative



2 years postoperative anteroposterior and lateral views



Coronal MRI 2 years postoperative



Sagittal MRI 2 years postoperative

### CASE 3,4

### **I. Personal history.**

**Personal history.**  
K. Name: Ahmed Mohamed Mostafa  
L. Age: 38 years old  
M. Sex: male  
N. Occupation: office job  
O. Special habits: no special habits of medical importance  
P. Telephone:  
Q. Address:

## II. History:

History of General disease: Allergic pharyngitis  
Onset of Complaint: Left hip pain since September 2002  
History of corticosteroid intake and duration of intake: phenadone syrup  
Stage at diagnosis:  
Date of operation: 17 / 10/ 2002

**Harris Hip score for Left hip**

**1. Pain (44 possible)**

**1. Pain (44 possible)**

Pain Level	Score
A. None, or ignores it	44
C. Mild pain, no effect on activities, rarely moderate pain with unusual activity, may take aspirin	30
E. Marked pain, serious limitation of activities	10

## 2. Function (47 possible)

2.A. Gait (33 possible)		Score	Pre-op	2 wks	6 wks	6 mth	12mt h	18 mt h
2.A.1. Limp:								
	a. None	11	11					
	b. Slight	8		5	5	5	5	5
	c. Moderate	5						
	d. Severe	0						
2.A.2. Support:								
	a. None	11	11			11	11	11
	b. Cane for long walks	7						
	d. One crutch	3		3	3			
	f. Two crutches	0						
2.B.1. Stairs:								
	b. Using railing	2	2	2	2	2	2	2
	d. Unable to do stairs	0						
2.B.2. Shoes & Socks:								
	b. With difficulty	2					2	2
	a. Any chair one hour	5	5	5	5	5	5	5
	c. Unable to sit comfortably	0						
2.B.4 Enter public transport			1	1	1	1	1	1



### 3. Absence of Deformity (4 points each if present)

	PRE-OP	2 WKS	6 WKS	6 MTH	12MTH	18 MTH	24 MTH
A. Less than 30 degrees fixed flexion contracture	4	4	4	4	4	4	4
B. Less than 10 degrees fixed adduction	4	4	4	4	4	4	4
C. Less than 10 degrees fixed internal rotation in extension.	4	4	4	4	4	4	4
D. Limb length discrepancy less than 1/2 cm	4	4	4	4	4	4	4

### 4. Range of Motion

	Arc of Motion	Index	Max. possible							
	45-90°(45°)	0.6	27	27	27	27	27	21	21	21
	110-130°(20°)	0.0	0							
	15-20°(5°)	0.3	1.5	1.5	1.5	1.5				
E.R. in extension	0-15°	0.4	6	6	6	6	6	4	2	2
I.R. in extension	Any	0.0	0							
	Over 15°	0.0	0							
Extension										
Flexion										

### Harris Hip score for Right Hip

1. Pain (44 possible)

	Score	Pre-op	2 wks	6 wks	6 mth	12mth	18 mth	24 mth
A. None, or ignores it	44		44	44	44	44	44	44
B. Slight, occasional, no compromise in activities	40	40						
C. Mild pain, no effect on activities, rarely moderate pain with unusual activity, may take aspirin	30							
D. Moderate pain, tolerable but makes concessions to pain, some limitation of ordinary activities, may require occasional aspirin	20							
E. Marked pain, serious limitation of activities	10							

**2. Function (47 possible)**

2.A.1. Limp:									
b. Slight			8						
d. Severe			0						
2.A.2. Support:									
b. Cane for long walks			7						
d. One crutch			3			3			
f. Two crutches			0						

## 2.B. Activities (14 possible)

### 2.B.1. Stairs:

2	a. Normally	4	4	4	4	4	4	4
	b. Using railing	2						
	c. In any manner	1						
	d. Unable to do stairs	0						

### 2.B.2. Shoes & Socks:

	a. With ease	4	4	4	4	4	4	4
	b. With difficulty	2						
	c. Unable	0						

### 2.B.3. Sitting:

	a. Any chair one hour	5	5	5	5	5	5	5
	b. In high chair or on floor	3						
	c. Unable to sit comfortably	0						
		1	1	1	1	1	1	1

### 2.B.4 Enter public transport

## 3. Absence of Deformity (4 points each if present)

A. Less than 30 degrees fixed flexion contracture	4	4	4	4	4	4	4
C. Less than 10 degrees fixed internal rotation in extension.	4	4	4	4	4	4	4

#### 4. Range of Motion

			Pre-op	2 wks	6 wks	6 mth	12mth	18 mt h	24mt h
	Arc of Motion	Index	Max. possible						
Flexion	0-45°(45°)	1.0	45	45	45	45	45	45	45
	45-90°(45°)	0.6	27	27	27	27	27	27	27
	90-110°(20°)	0.3	6	0	3	0	0	6	6
	110-130°(20°)	0.0	0						
Adduction	0-15°(15°)	0.8	12	12	12	12	12	12	12
	15-20°(5°)	0.3	1.5						
	20-25°								
E.R. in extension	0-15°	0.4	6	6	6	6	6	6	6
I.R. in extension	Any	0.0	0						
	Over 15°	0.0	0						





6 months postoperative on left hip and preoperative on right hip



9 months postoperative on left hip and preoperative on right hip



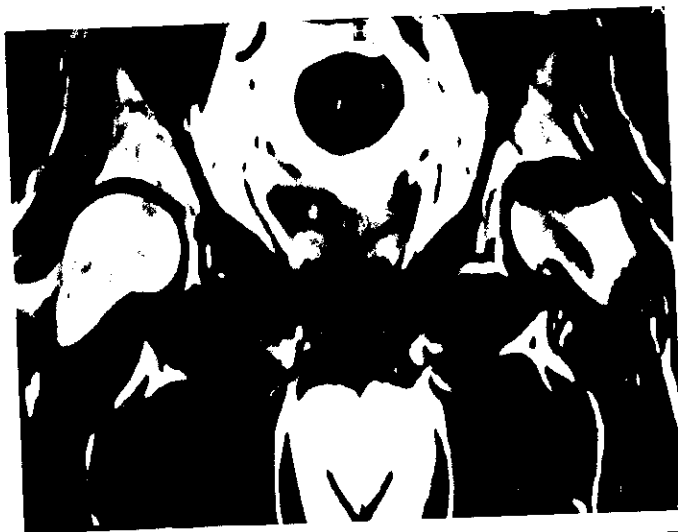
Left hip 9 months postoperative



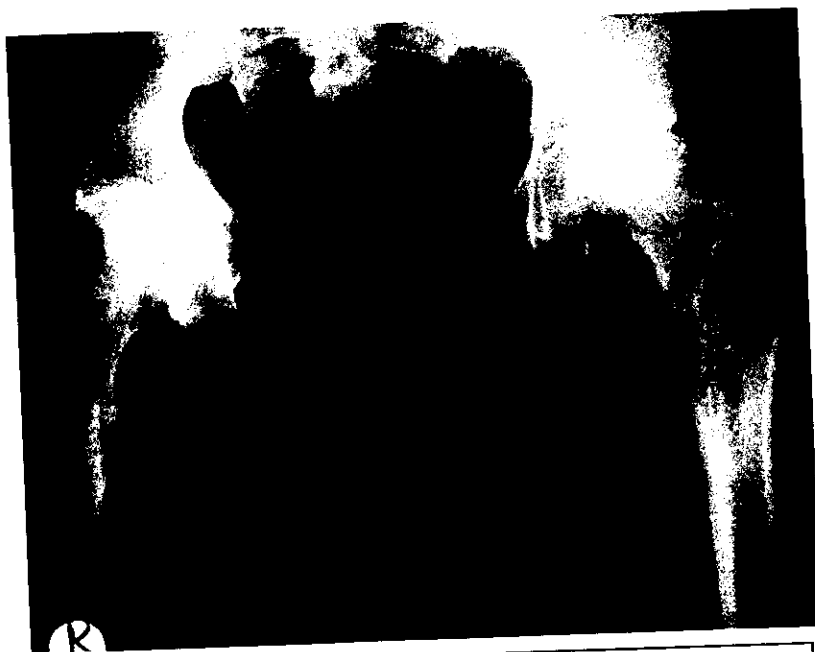
MRI coronal plane showing post operative follow up of the left hip by 9 months, and early AVN of the right hip



Postoperative x-ray of the right hip

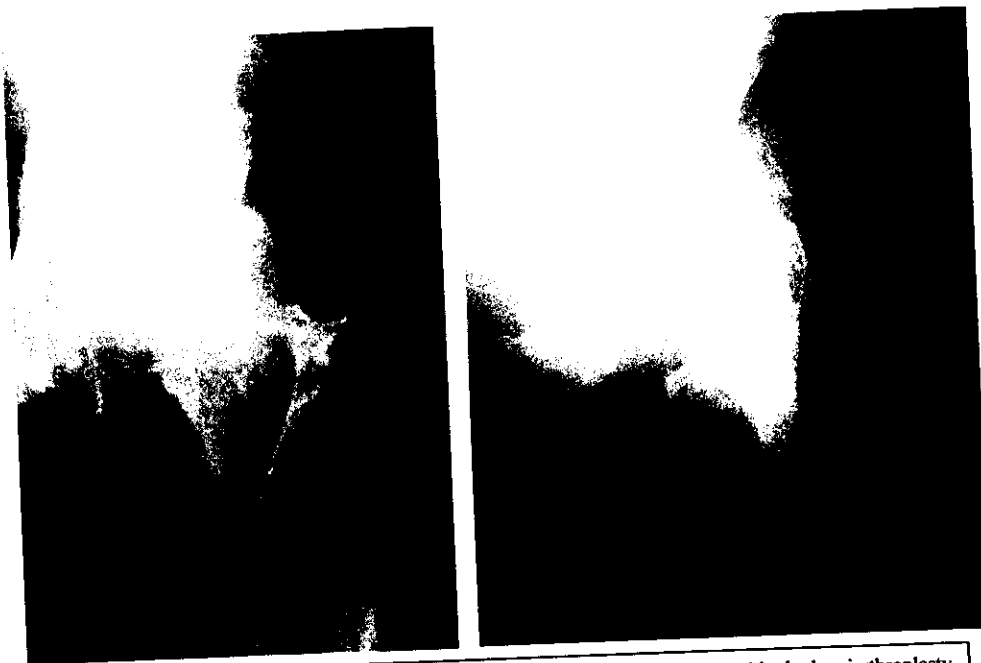


Sagittal plane MRI follow up 6 months postoperative right hip , and 15 months postoperative on left hip



24 months follow up f the left hip and 15 months follow up of the right hip





2 years follow up of the left hip with collapse of the left femoral head, and after bipolar hemiarthroplasty



2 years follow up of the right hip joint

## Case 5,6

### I. Personal history.

- R. Name: Alaa Eldin Foad
- S. Age: 41 years old
- T. Sex: male
- U. Occupation: security worker
- V. Special habits: smoker 10 cigarettes / day

### II. History:

History of General disease: No

Onset of Complaint: February 2004

History of corticosteroid intake and duration of intake: 14 injections of diprofos for lumbar disc prolapse.

The patient performed core decompression for both hips at the same setting

### Harris Hip Score for the Right Hip

#### 13. Pain (44 possible)

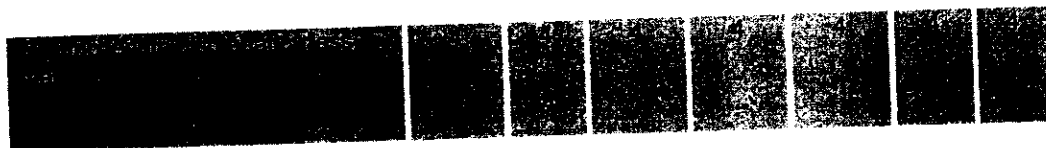
A. None, or ignores it	44					44	44	44
C. Mild pain, no effect on activities, rarely moderate pain with unusual activity, may take aspirin	30		30					
E. Marked pain, serious limitation of activities	10							

# 14. Function (47 possible)

2.A. Gait (33 possible)	Score	Pre-op	2 wks	6 wks	6 mth	12 mth	18 mth
2.A.1. Limp:							
a. None	11						
b. Slight	8				8		
c. Moderate	5	5	5	5			
d. Severe	0						
2.A.2. Support:							
a. None	11	11	11	11	11	11	11
b. Cane for long walks	7						
c. One crutch	3						
d. Two canes	2						
f. Two crutches	0						
2.B.1. Stairs:							
b. Using railing	2	2	2	2	2		
d. Unable to do stairs	0						
2.B.2. Shoes & Socks:							
b. With difficulty	2	2	2	2	2		
a. Any chair one hour	5	5	5	5	5	5	5
c. Unable to sit comfortably	0						
2.B.4 Enter public transport		1	1	1	1	1	1

15. Absence of Deformity (4 points each if present)

	PRE- OP	2 WKS	6 WKS	6 MTH	12MTH	18 MTH	24 MTH
A. Less than 30 degrees fixed flexion contracture	4	4	4	4	4	4	4
B. Less than 10 degrees fixed extension	4	4	4	4	4	4	4
C. Less than 10 degrees fixed internal rotation in extension.	4	4	4	4	4	4	4



16. Range of Motion

	Arc of Motion	Index	Max. possible						
	45-90°(45°)	0.6	27	27	27	27	27	27	27
	110-130°(20°)	0.0	0						
	15-20°(5°)	0.3	1.5					1.5	1.5
E.R. in extension	0-15°	0.4	6	6	6	6	6	6	6
I.R. in extension	Any	0.0	0						
	Over 15°	0.0	0						

# 1. Pain (44 possible)

	Score	Pre-op	2 wks	6 wks	6 mth	12mth	18 mth	24 mth
A. None, or ignores it	44	44	44	44	44	44	44	44
B. Slight, occasional, no effect on activities	40							
C. Mild pain, no effect on activities, rarely moderate pain with unusual activity, may take aspirin	30							
D. Moderate pain, tolerable but makes it difficult to gain satisfaction from many activities	20							
E. Marked pain, serious limitation of activities	10							

# 2. Function (47 possible)

2.A.1. Limp:								
a. None	8							
b. Slight	8							
c. Moderate	0							
d. Severe	0							
2.A.2. Support:								
a. No support	7							
b. Cane for long walks	7							
c. One crutch	3							
d. Two crutches	0							

## 2.B. Activities (14 possible)

### 2.B.1. Stairs:

4	a. Normally	4	4	4	4	4	4	4
	b. Using railing	2						
	c. In any manner	1						
	d. Unable to do stairs	0						

### 2.B.2. Shoes & Socks:

	a. With ease	4	4	4	4	4	4	4
	b. With difficulty	2						
	c. Unable	0						

### Sitting:

	a. Any chair one hour	5	5	5	5	5	5	5
	b. In any chair	3	3	3	3	3	3	3
	c. Unable to sit comfortably	0						

### 2.B.4 Enter public transport

		1	1	1	1	1	1	1
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## 3. Absence of Deformity (4 points each if present)

### A. Less than 30 degrees fixed flexion contracture

	4	4	4	4	4	4	4
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### C. Less than 10 degrees fixed internal rotation in extension.

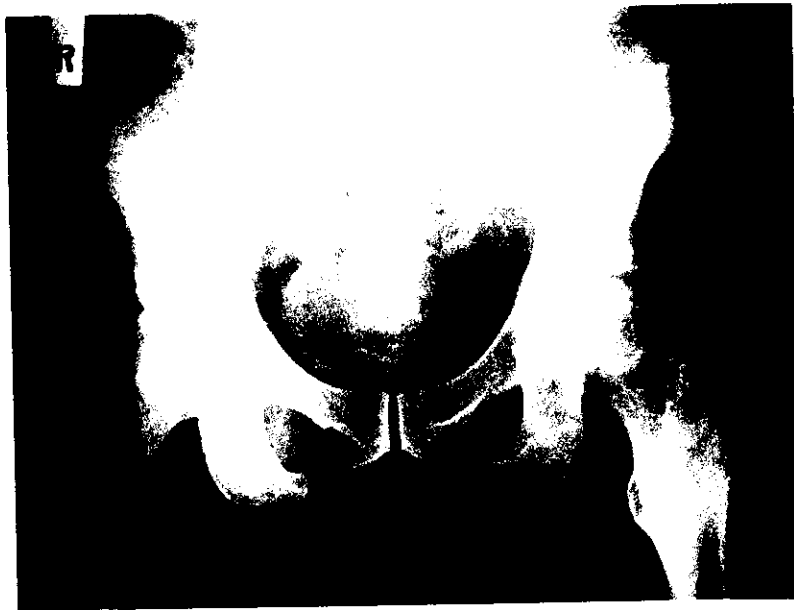
	4	4	4	4	4	4	4
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### D. Joint motion approximately equal to normal

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#### 4. Range of Motion

			Pre-op	2 wks	6 wks	6 mth	12 mth	18 mth
	Arc of Motion	Index	Max. possible					
Flexion	0-45°(45°)	1.0	45	45	45	45	45	45
	45-90°(45°)	0.6	27	27	27	27	27	27
	90-110°(20°)	0.3	6	6	6	6	6	6
	110-130°(20°)	0.0	0					
Abduction								
	15-20°(5°)	0.3	1.5	1.5	1.5	1.5	1.5	1.5
E.R. in extension	0-15°	0.4	6	6	6	6	6	6
I.R. in extension	Any	0.0	0					
	Over 15°	0.0	0					
Total HHS				213.5	213.5	213.5	213.5	213.5



Preoperative x-ray pelvis

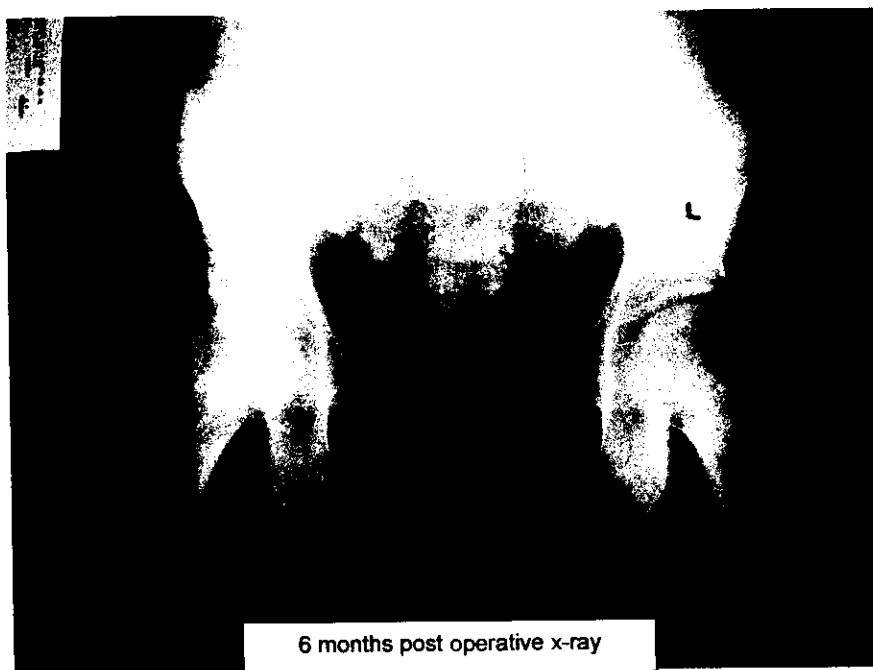


Pre operative MRI saittal plane showin bilateral AVN





Postoperative x-ray pelvis

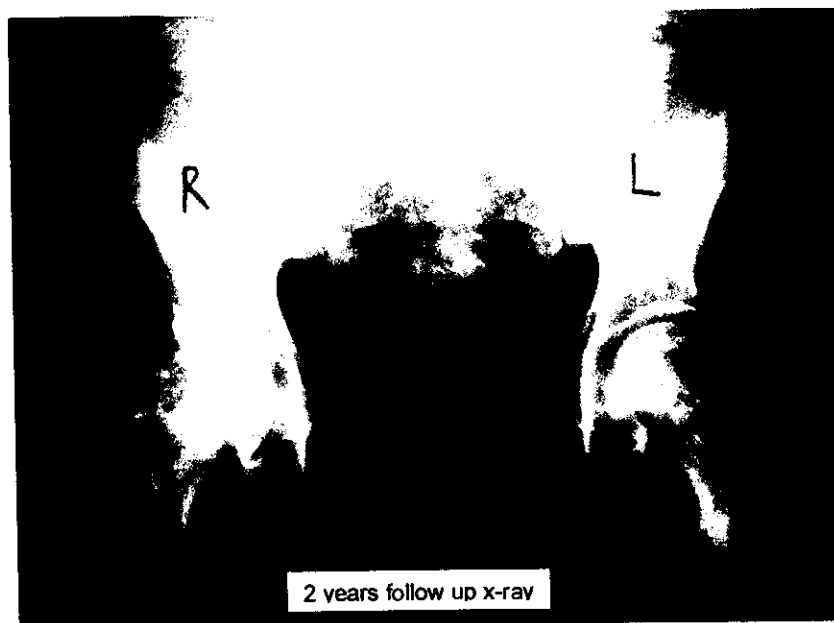


6 months post operative x-ray





One year follow up x-ray of both hips



2 years follow up x-ray



2 years follow up x-ray lateral view