

RESULTS

(I) Robotic Myomectomy

Patient Demographics and Baseline Characteristics:

All patients included in this study requested a fertility preserving surgical management of their symptomatic fibroids. From a total of 575 myomectomies performed during the study period; 393 (68.3%) patients underwent open myomectomy (OM), 93 (16.2%) patients underwent conventional laparoscopic myomectomy (LM) and 89 (15.5%) patients underwent robotic myomectomy (RM) using the Da-Vinci surgical system.

The mean (SD) age of patients in the LM group was (39.57(9.17)) years which was significantly higher than that OM (36.93(5.61)) and that of the RM group (36.62(5.18)); ($P < 0.001$). Similarly, the median (IQR) weights were 75.57 (62.85, 90.72), 64.86 (59.10, 76.66) and 68.04 (57.65, 82.56) kg in the OM, LM and RM groups respectively.

All three groups were comparable regarding the patients heights, ($P=0.97$). Due to the significant differences in the patients weight the median BMI (IQR) was significantly higher in OM 27.61 (23.40, 32.88) kg/ (m²) compared to 24.10 (22, 28.01) kg/ (m²) in the LM as well as the RM group 25.15 (22.14, 29.44) kg/ (m²), ($P < 0.001$). No significant differences were seen among the three groups regarding their parity ($P=0.13$) [Table \(5\)](#).

Previous Abdominal Surgeries:

Overall, prior history of myomectomies was encountered equally in the three groups with values of 9/393 (2.3%), 6/93 (6.4%) and 4/89 (4.5%) in the OM, LM and RM groups respectively ($P=0.086$). A significantly higher numbers of previous operative laparoscopies

($P=0.017$), tubal ligations ($P=0.04$) and cesarean sections ($P=0.047$) were performed in the OM compared to the other two groups, [Table \(5\)](#).

Morphological, Anatomical and Pathological Features of the Myomas:

The anatomical, pathological, and surgical parameters features of the fibroids of the three groups were evaluated. The median (IQR) of the maximum diameter of the removed myoma in cm as measured by preoperative ultrasound or MRI examination was 7.50 (5.05, 10.20) cm in the OM group, 6.70 (4.20, 10) cm in the LM group and 7.70 (5.40, 10.50) cm in the RM group [Figure \(24\)](#) and [Table \(6\)](#). Significantly larger myomas were removed in the OM and the RM groups compared to the LM group ($P=0.036$).

The median (IQR) weight of the removed myomas in grams as measured postoperatively during the pathological examination showed significantly heavier myomas in the OM group 263 (90.43, 448.25) gram, than in the LM group 96.65 (49.50, 227.25) gram and in the RM group 223 (85.25, 391.50) gram with ($p < 0.001$) [Figure \(25\)](#). The weight of the removed myomas is comparable between both robotic and open groups while being significantly lower in the laparoscopic group. In addition, significant heavier myomas were removed in the RM group when compared the LM ($P < 0.001$).

On imaging, myomas were similarly distributed in the anterior wall, posterior wall and the fundus in all three groups [Table \(6\)](#). Similarly, cervical myomas were encountered equally during the three surgical approaches. Interestingly, significantly more broad ligament myomas ($p=0.006$) were successfully removed robotically compared to the two other approaches. Similarly, more multiple corporeal myomas were encountered in the RM group ($P=0.041$).

Overall, significantly higher numbers of myomas were removed in the OM and RM groups compared to the LM group ($P < 0.001$). Of interest the largest number of submucous

myomas were removed robotically ($P=0.02$). A summary of the ultrasound data, anatomical and the surgical features describing the removed myomas are detailed in [Table \(6\)](#).

Surgical outcomes following the Different Surgical Approaches:

The intra-operative and immediate postoperative outcomes were compared among the three groups and presented in [Table \(7\)](#).

Over all, a significantly higher blood loss was reported in the OM compared to the other two groups with the median (IQR) of the blood loss of 200 (100, 437.50) mL, 150 (100, 200) mL and 100 (50, 212.50) mL in the OM, LM and RM groups respectively ($P < 0.001$); [Figure \(26\)](#). On comparing the different groups; a significant higher blood loss was reported in the OM group compared to the LM group ($P < 0.001$), OM compared to the RM group ($P < 0.001$), while there was no significant difference blood loss between the RM group and LM group ($P = 0.065$).

Upon translating the estimated blood loss to a postoperative drop in the patient's hemoglobin Concentration, the median (IQR) of Hb drop was 2 (1.40, 2.90), 1.55 (1.20, 2.40) and 1.30 (0.80, 2.28) gm/dL in the OM, LM and RM groups respectively [Figure \(27\)](#). The hemoglobin drop was significantly lower in the RM group compared to the other two groups ($p < 0.001$). Significantly less Hb drop was detected in RM group compared to the OM group ($P < 0.001$), On the other side the 2 minimally invasive approaches (LM&RM) were comparable regarding the postoperative Hb drop ($P = 0.36$).

The actual surgical time was significantly less with the OM group than in both other groups $P < 0.001$; [Figure \(28\)](#) where the median and IQR was 126 (95, 177), 155 (98, 200) and 181 (151, 265) minutes for the OM, LM and RM groups respectively. The actual surgical time is defined as the time from the incision to the closure. It reflects the absolute time of the surgi-

cal procedure. Only when the OM group was compared to the RM group, the actual surgical times were significantly higher in the RM group ($P < 0.001$).

The need for blood transfusion was reported in 27 cases in the entire cohort giving a blood transfusion rate of 4.7%. Out of these, 25 cases (6.4%) were reported in the OM group and 2 cases (2.2%) in the RM group. No patients required blood transfusion in the LM group.

Three postoperative complications were also reported within the total number of cases. One case of wound separation was reported in the OM group that required readmission and intervention for wound closure. Two complications were reported in the LM group including bowel injury that required conversion to laparotomy and the second was postoperative pyrexia with no major impact on the patient's health. No post-operative complications were reported in the RM group.

Finally, the median (IQR) length of patient's hospital stay was 3 (2, 3) days in the OM group, 1(0, 1) days in the LM group and 1 (0, 1) days; and RM group. Patients in the OM group had significantly longer median length of hospital stay compared to the LM and RM groups ($P < 0.001$).

Table (5): Patients' demographics and baseline characteristics

Factor		Total	N	Abdominal Statistics	N	Laparoscopic Statistics	N	Robotic Statistics	p value
Pt Age in years*		575	393	36.93(5.61)	93	39.57(9.17)	89	36.62(5.18)	< 0.001A
Pt Weight in Kg**		538	356	75.57 (62.85, 90.72)	93	64.86 (59.10, 76.66)	89	68.04 (57.65, 82.56)	< 0.001K
Pt Height in cm*		520	340	163.92(13.17)	91	164.02(6.19)	89	163.63(6.62)	0.97A
Pt Body mass index in kg/(m^2).**		516	340	27.61 (23.40, 32.88)	91	24.10 (22.00, 28.01)	85	25.15 (22.14, 29.44)	< 0.001K
Parity									0.13C
	0	353	243	65.32 %	51	58.62 %	59	68.60 %	
	1	1	91	54 %	14. 5 2	21 %	24.14	16 %	
	2	2	68	47 %	12. 6 3	11 %	12.64	10 %	
	3+	33	28	7.53 %	4	4.60 %	1	1.16 %	
Previous abdominal surgery									
myomectomy	No	556	384	69.06	87	15.65	85	15.29	0.086F
	Yes	19	9	47.37 %	6	31.58 %	4	21.05	
operative laparoscopy	No	510	352	69.02	75	14.71	83	16.27	0.017C
	Yes	65	41	63.08 %	18	27.69 %	6	9.23 %	
Tuabl ligation	No	552	376	68.12	87	15.76	89	16.12	0.04F
	Yes	23	17	73.91 %	6	26.09 %	0	0.00 %	
CS	No	526	365	69.39	79	15.02	82	15.59	0.047C
	Yes	49	28	57.14 %	14	28.57 %	7	14.29 %	
Others	No	512	356	69.53	78	15.23	78	15.23	0.16C
	Yes	63	37	58.73 %	15	23.81 %	11	17.46 %	

A: One-way Analysis of Variance

K: Kruskal-Wallis rank sum test

*-Mean (SD), **-Median (P25, P75)

C: Pearson's Chi-squared test

F: Fisher's Exact Test for Count Dat

Table (6): Ultrasonographic, surgical, and pathological features of the removed myomas

		Total	Abdominal		Laparoscopic		Robotic		
Factor	Level		N	Statistics	N	Statistics	N	Statistics	p value
Anterior(corporeal)	No	482	328	83.46 %	79	84.95 %	75	84.27 %	0.93C
	Yes	93	65	16.54 %	14	15.05 %	14	15.73 %	
Posterior(corporeal)	No	440	304	77.35 %	66	70.97 %	70	78.65 %	0.37C
	Yes	135	89	22.65 %	27	29.03 %	19	21.35 %	
Fundal(corporeal)	No	430	295	75.06	65	69.89	70	78.65	0.39C
	Yes	145	98	24.94 %	28	30.11 %	19	21.35 %	
Multiple (corporeal)	No	378	254	64.63	71	76.34	53	59.55	0.041C
	Yes	197	139	35.37 %	22	23.66 %	36	40.45 %	
Cervical	No	574	392	99.75	93	100.00	89	100.00	> 0.99F
	Yes	1	1	0.25 %	0	0.00 %	0	0.00 %	
Broad Ligament	No	553	383	97.46	90	96.77	80	89.89	0.006F
	Yes	22	10	2.54 %	3	3.23 %	9	10.11 %	
Subserosal	No	413	289	73.54	67	72.04	57	64.04	0.20C
	Yes	162	104	26.46 %	26	27.96 %	32	35.96 %	
Intramural	No	139	82	20.87	38	40.86	19	21.35	< 0.001C
	Yes	436	311	79.13 %	55	59.14 %	70	78.65 %	
Submucosal	No	491	339	86.26	84	90.32	68	76.40	0.02C
	Yes	84	54	13.74 %	9	9.68 %	21	23.60 %	
Pedunculated	No	484	334	84.99	72	77.42	78	87.64	0.12C
	Yes	91	59	15.01 %	21	22.58 %	11	12.36 %	
Multiple infiltration	No	541	369	93.89	86	92.47	86	96.63	0.47C
	Yes	34	24	6.11 %	7	7.53 %	3	3.37 %	
Maximum diameter of myomas removed in cm**		572	390	7.50 (5.05, 10.20)	93	6.70 (4.20, 10.00)	89	7.70 (5.40, 10.50)	0.036K ^b
Weight of removed myomas in grams**		457	298	263.00 (90.43,448.25)	72	96.65 (49.50,227.25)	87	223.00 (85.25,391.50)	< 0.001K ^b
Number of Myomas Removed									< 0.001C
	1	208	125	60.10 %	51	24.52 %	32	15.38 %	
	2	84	58	69.05 %	18	21.43 %	8	9.52 %	
	3	61	40	65.57 %	8	13.11 %	13	21.31 %	
	4	29	18	62.07 %	6	20.69 %	5	17.24 %	
	5+	193	152	78.76 %	10	5.18 %	31	16.06 %	

K: Kruskal-Wallis rank sum test

A: One-way Analysis of Variance

*-Mean (SD) , ** -Median (P25 , P75)

F: Fisher's Exact Test for Count Data

C: Pearson's Chi-squared test

a Abdominal Vs Robotic : 0.38

Laparoscopic Vs Robotic: 0.14

Abdominal Vs Laparoscopic: 0.012

b Abdominal Vs Robotic : 0.001

Laparoscopic Vs Robotic: < 0.001

Abdominal Vs Laparoscopic< 0.001

Table (7): Surgical outcomes of the different surgical approaches

		Abdominal		Laparoscopic		Robotic			
Factor	Total	N	Statistics	N	Statistics	N	Statistics	Overall P value	
Actual surgical time in minutes**	509	391	126 (95,177)	93	155 (98,200)	25	181 (151,265)	0.001K ^a	
Preoperative Hb in g/dl**	518	354	12.50 (11.22, 13.50)	76	13.15 (12.47, 13.70)	88	12.80 (11.60, 13.72)	0.005K	
Blood loss in ml**	571	390	200 (100,437.50)	93	150 (100,200)	88	100 (50,212.50)	< 0.001K ^b	
Postoperative Hb in g/dl*	495	343	10.10(1.67)	70	11.13(1.28)	82	10.90(1.62)	< 0.001A	
Hb drop in g/dl**	492	340	2 (1.40, 2.90)	70	1.55 (1.20, 2.40)	82	1.30 (0.80, 2.28)	< 0.001K ^c	
Hospital stay, days**	539	372	3 (2, 3)	78	1 (0.00, 1)	89	1 (1, 1)	< 0.001K	
Blood trans-fusion	No	548	368	67.15 %	93	16.97 %	87	15.88 %	0.008F
	Yes	27	25	92.59 %	0	0.00 %	2	7.41 %	
Postoperative complications	No	570	390	68.42 %	91	15.96 %	89	15.61 %	0.13F
	Yes	3	1	33.33 %	2	66.67 %	0	0.00 %	

K: Kruskal-Wallis rank sum test

A: One-way Analysis of Variance

*-Mean (SD) , ** -Median (P25 , P75)

F: Fisher's Exact Test for Count Data

C: Pearson's Chi-squared test

a Abdominal Vs Robotic : < 0.001

Laparoscopic Vs Robotic: 0.015

Abdominal Vs Laparoscopic: 0.045

b Abdominal Vs Robotic : < 0.001

Laparoscopic Vs Robotic: 0.065

Abdominal Vs Laparoscopic: < 0.001

c Abdominal Vs Robotic : < 0.001

Laparoscopic Vs Robotic: 0.36

Abdominal Vs Laparoscopic: 0.002

Maximum Diameter of the Resected Myoma in (cm) by Surgical Approach

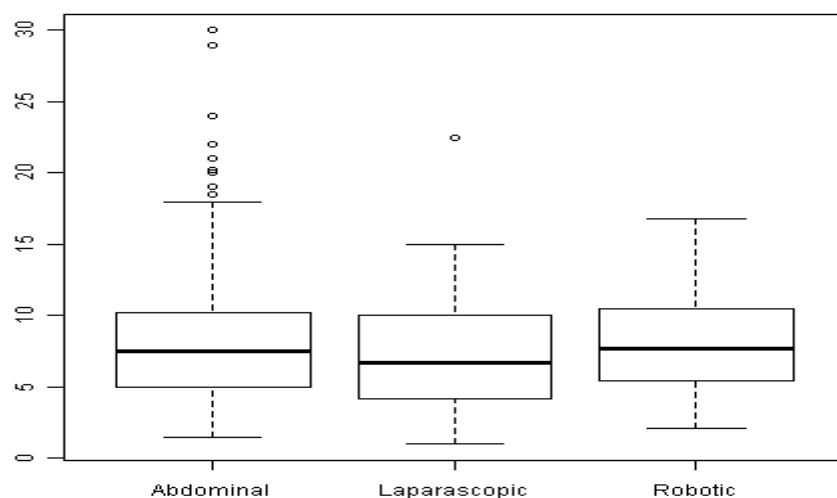


Figure (24)

Weight of the Resected Myomas in (grams) by Surgical Approach

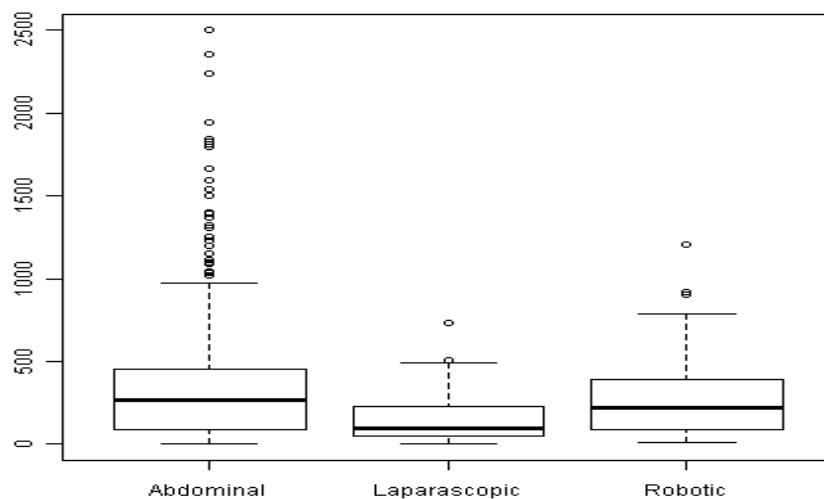
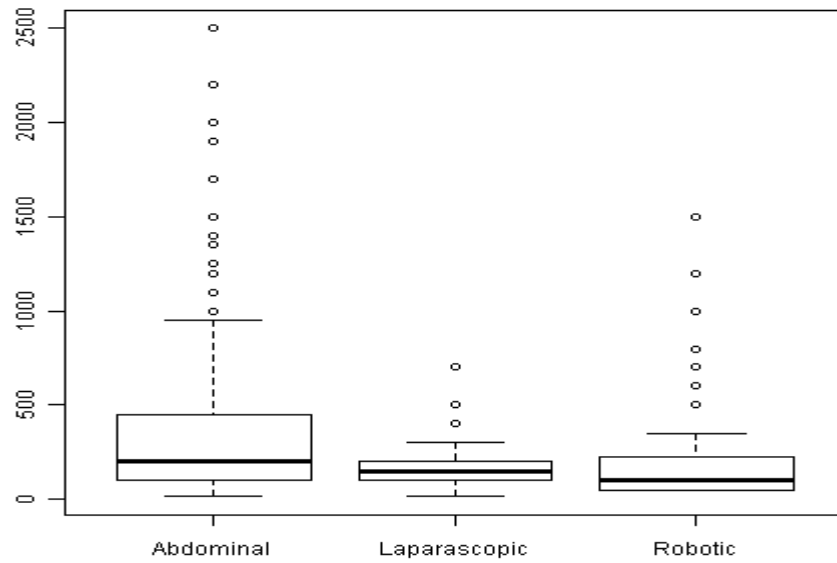
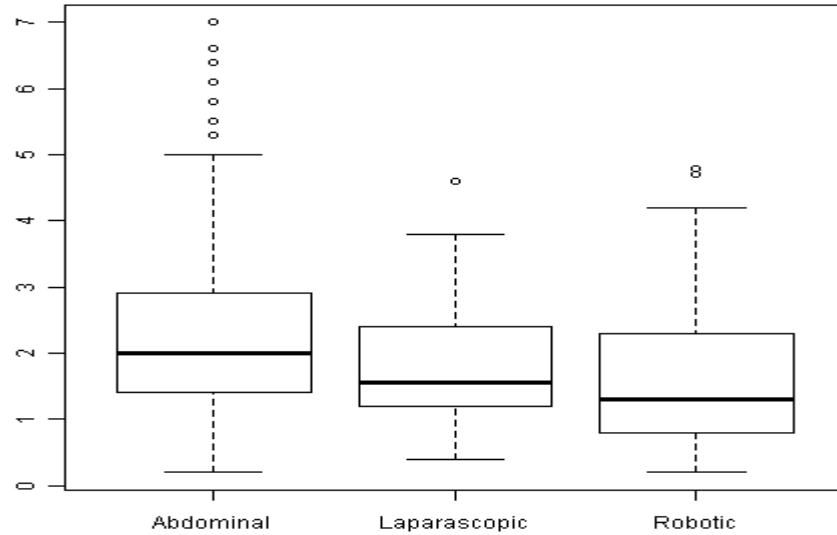
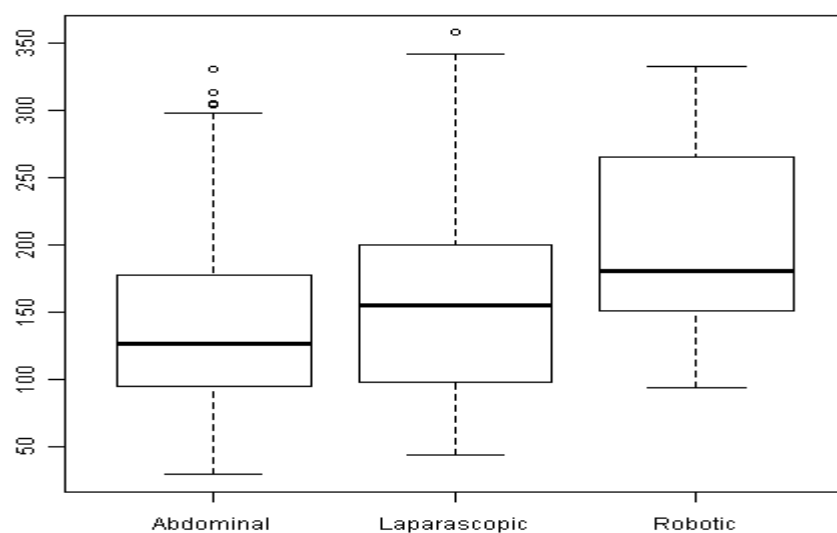


Figure (25)

The Intra-operative Blood Loss in (mL) by Surgical Approach**Figure (26)****The Postoperative Hemoglobin Drop (gm/dL) by Surgical Approach****Figure (27)**

The Actual Operative Time in (minutes) by Surgical Approach**Figure (28)**

(II) Robotically Assisted Tubal reanastomosis

From 135 tubal reanastomosis cases, 34 patients were performed using the Da-Vinci robot, 17 cases completed with conventional laparoscopy and 84 were done by mini-laparotomy.

Patients' demographic data :Table (8).

The mean (SD) age of patients in years was 34 (4.69), 35.53(4.98) and 35.14(4.37) in the robotic, laparoscopic and minilaparotomy groups respectively with no significant difference were detected among the three groups; P value: 0.39. The median (IQR) BMI of patients was 24.89 (23.34, 29.04) kg/m² in the robotic group, 28.40 (27.84, 28.96) kg/m² in the laparoscopic group while 24.64 (21.59, 27.63) kg/m² in the open group with no significant difference among the three groups, P value = 0.18.

The mean (SD) of Gravidity has been also recorded as 3 (2, 3) in the robotic group, 3 (3, 3) in the laparoscopic one while 3 (2, 4) in the minilaparotomy group which was not significantly different, P = 0.50. The parity was also comparable among the three groups being 2 (2, 3) in the robotic, 2 (2, 3) in the laparoscopic and 2 (2, 3) in the open groups without significant difference P = 0.66.

Surgical outcome measures and cost analysis: Tables (9) and (10).

Comparing the three groups in regard to the total operative time in minutes showed a Significant longer total operative time in the robotic group 280.09(26.29) ,and the laparoscopic group 271.41(66.24) compared to the open group 200.85(54.86), P<0.001.

The amount of blood loss in mL was significantly less in the laparoscopic group 20 (20, 30), than in both robotic 50 (50, 87.50) and open 50 (22.50, 50) groups, P<0.001 [*Figure \(29\)*](#)

Concerning the length of hospital stay, all cases were discharged in either the same day or one day later. Only 99 patients with a hospital stay record were available. Among those 70 cases were discharged in the same day while 29 patients stayed for the next day. The former 70

cases has been distributed as 22 (31.43 %) in the robotic group, 4 (5.71 %) in the laparoscopic group while 44 (62.86 %) in the laparoscopic group. On the other side the number of patients who left the hospital on the second postoperative day was 29. From this number 6 (20.69 %) were robotic, 1 (3.45 %) was laparoscopic and 22 (75.86 %) were open. Overall, no significant difference was detected among the three encounters concerning the length of the hospital stay P value 0.58F.

The total cost in US dollars was significantly lower in the open group 4688 (3461, 6009), compared to both robotic 7813.50 (7070.50, 9068.25), and the laparoscopic 6804 (6231, 7586) groups, $P < 0.001$.

Table (8): Demographic Summary

		<i>Da vinci robot</i>		<i>Laparoscopic</i>		<i>Minilaparotomy</i>		
Factor	Total	N	Statistics	N	Statistics	N	Statistics	p value
Age in years [*]	135	34	34 (4.69)	17	35.53(4.98)	84	35.14(4.37)	0.39A
BMI ^{**}	90	29	24.89 (23.34,29.04)	2	28.40 (27.84,28.96)	59	24.64 (21.59,27.63)	0.18K
Gravidity ^{**}	121	34	3 (2, 3)	10	3 (3, 3)	77	3 (2, 4)	0.50K
Parity ^{**}	121	34	2 (2, 3)	10	2 (2, 3)	77	2 (2, 3)	0.66K

A: One-way Analysis of Variance

K: Kruskal-Wallis rank sum test

*-Mean (SD) , **-Median (P25 , P75)

Table (9): Comparison of Numerical Outcomes

		<i>Da vinci robot</i>		<i>Laparoscopic</i>		<i>Minilaparotomy</i>		
Factor	Total	N	Statistics	N	Statistics	N	Statistics	p value
Total operative time in mins [*]	135	34	280.09(26.29)	17	271.41(66.24)	84	200.85(54.86)	< 0.001A
Blood loss, ^{**}	134	34	50 (50, 87.50)	17	20 (20, 30)	83	50 (22.50, 50)	< 0.001K
Total cost in US \$ ⁺	120	34	7813.50 (7070.50,9068.25)	17	6804 (6231,7586)	69	4688 (3461,6009)	< 0.001K

A: One-way Analysis of Variance

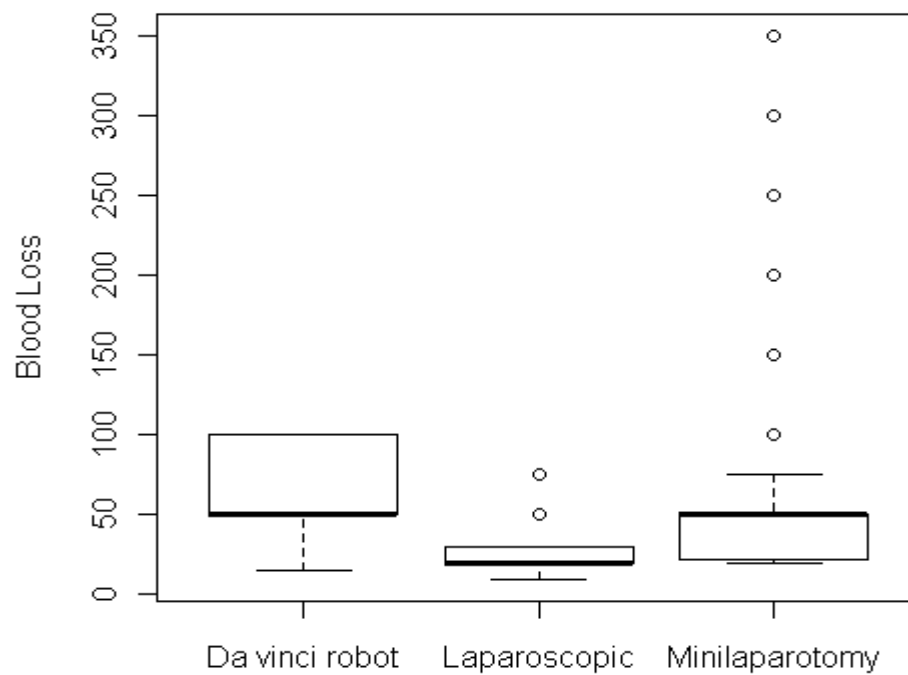
K: Kruskal-Wallis rank sum test

*-Mean (SD) , **-Median (P25 , P75)

Table (10): Comparison of Categorical Outcomes

			Da vinci robot		Laparoscopic		Minilaparotomy		
Factor	Level	Total	N	Percentage	N	Percentage	N	Percentage	p value
Hospital stay in days									0.58F
	0	70	22	31.43	4	5.71	44	62.86	
	1	29	6	20.69	1	3.45	22	75.86	

F: Fisher's Exact Test for Count Data

Blood Loss by Procedure Type**Figure (29)**

(III) Robotically Assisted Ovarian Transplantation

Seven sheep were included in the study. Four of them underwent robotic surgery and three underwent laparoscopic surgery. One of the three laparoscopic surgeries was converted to laparotomy while none of the robotic surgeries were converted. **Figures (30-34)** show the steps of the robotically assisted transplantation procedure, while **Figure (35)** shows the open technique after completing the transplantation process. Upon harvesting the ovarian tissue, the gross picture of the ovary has been examined to prove the graft viability. Graft was considered viable if it was seen attached to the ovary without detection of areas of necrosis **Figures (36-39)**.

Overall project summary was reported in **Table (11)** and detailed in **Table (12)**. Concerning the total operative time in minutes it appears that Robotic transplantation has a shorter operating time 64 (61.75, 65.75) than laparoscopic 86.5 (85.75, 87.25) with the one case converted to open shared a similar operating time with the robotic cases 65 (65, 65) **Figure (40)**.

The distribution of suturing time in minutes for each transplant type showed less time needed in the Robotic cases 30.5 (28.25, 32.75) than in the laparoscopic cases 42 (42, 42) and the time was lowest in the open procedure 12 (12, 12) **Figure (41)**. The type and size of sutures used have been also reported and compared among the three groups. 8-0 prolene sutures were used in the 4 Robotic cases (57.14%) and the open case 1(14.29 %) while 5-0 prolene sutures only could be used in the laparoscopic group 2(14.29%). Concerning the number of sutures used for each graft 6 sutures used in 3 (42.86%) which were all robotic cases, 5 sutures in 2(28.57%) one of them was robotic and the other was laparoscopic, 4 sutures in 1 (14.29%) of the laparoscopic cases and 7 suture in the remaining 1 (14.29 %) which was the open case.

.In 4 (57.14%) animals the graft appeared healthy and completely attached to the ovary without gross areas of necrosis. This was distributed as following 2 robotic cases, one laparoscopic, and the open case. In 2 (28.57%) animals, grafts were attached but incompletely, one of them was robotic and the other was laparoscopic while in 1 (14.29 %) animal it was completely separated from the ovary which was one of the robotic group.

Viability of the ovarian transplant was confirmed by histopathological examination. Absence of necrotic areas, Preservation of the normal tissue architecture and presence of intact follicles were the parameters used to confirm via. Four sections in each type of tissue were used to count the follicles per High power field 400x. Given the fact that the follicular count will reflect the future reproductive potential of the ovarian tissue, Follicles were counted and compared at two levels.

The first, was comparing the follicular count in each animal among the fresh, Frozen thawed and transplant. The second was comparing between the three surgical techniques open, laparoscopic, and robotic. Microscopic images of the H&E slide has been illustrated in [Table\(13\)](#). Follicular count in fresh, frozen thawed and the graft have been represented into the [figures \(42-44\)](#) and compared between the 3 surgical groups. A gradual decline in the follicular count was noticed along the course of the experiment. In other words, fewer follicles in the frozen thawed than fresh. Also less number in the graft than both fresh and frozen thawed and this follows the same pattern of the previously described studies. The graft was considered non-viable if careful examination of the tissue showed no follicles at all with detection of necrotic and or hyaline degeneration areas. Graft viability could be detected in 2 (50%) of the robotic transplants, one laparoscopic (50%) and the open one (100%). With reference to the figures, the open laparotomy case had the highest fresh counts. Laparoscopic and robotic cases appear to be fairly intertwined in the figure. There is not much to suggest that the counts are different between laparoscopy and robotic transplantation concerning fresh count. For counts in frozen

thawed (FT) Tissue and in grafts, the conclusions follow a similar pattern. There is not much evidence to suggest that the counts differ between robotic and laparoscopic transplantation with no significant difference among the 3 groups.

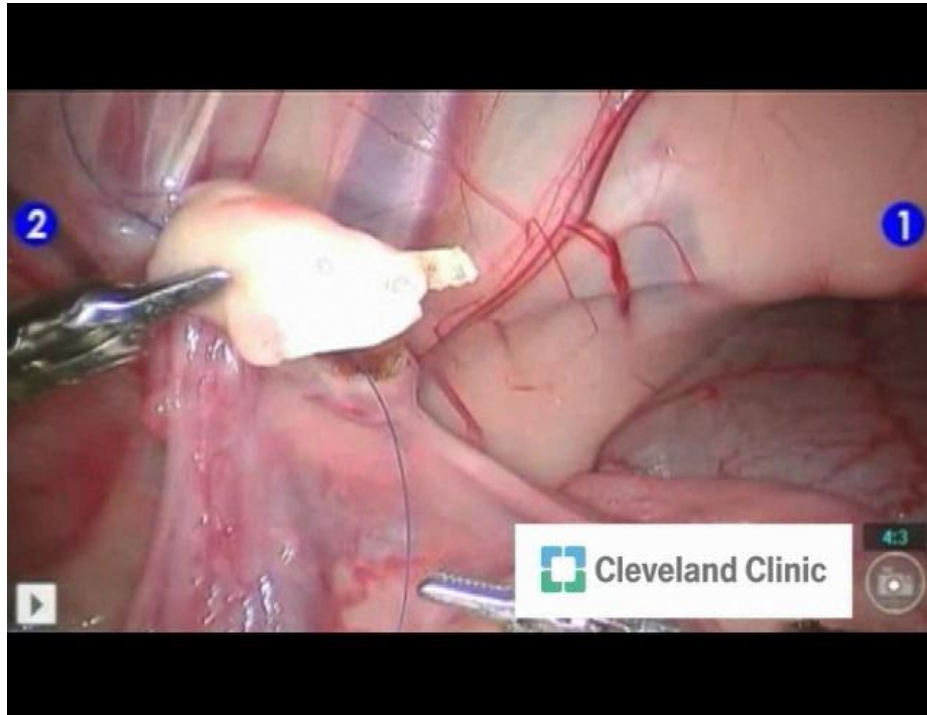


Figure (30): Introduction of the graft into the surgical field

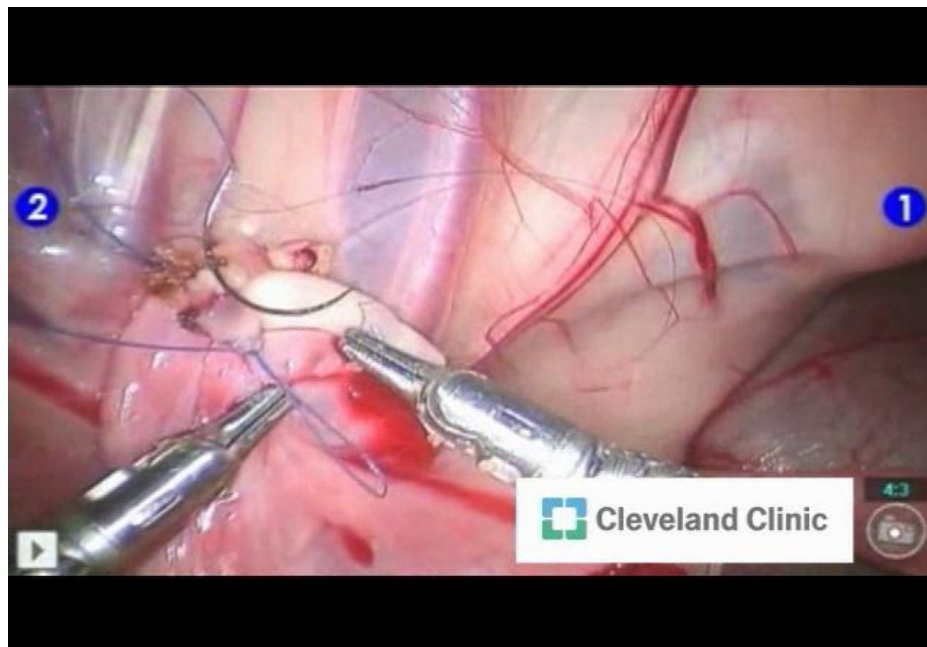


Figure (31): Suturing of the graft on the remaining ovarian tissue using 8-0 prolene sutures



Figure (32) : Continue suturing till 6 sutures are complete



Figure (33):The graft is completely fixed



Figure (34):The picture after completing the procedure

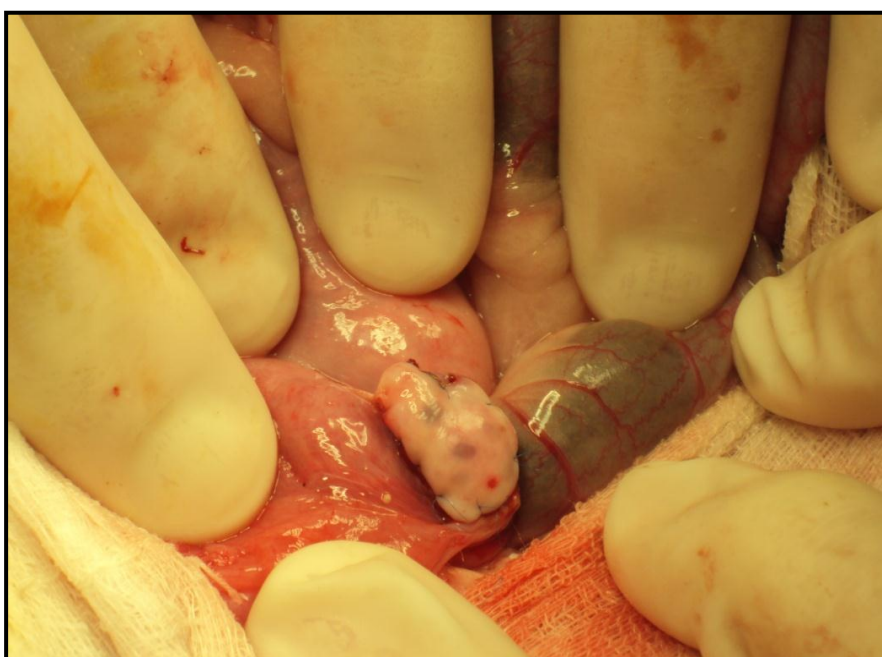


Figure (35):The completed open transplantation procedure

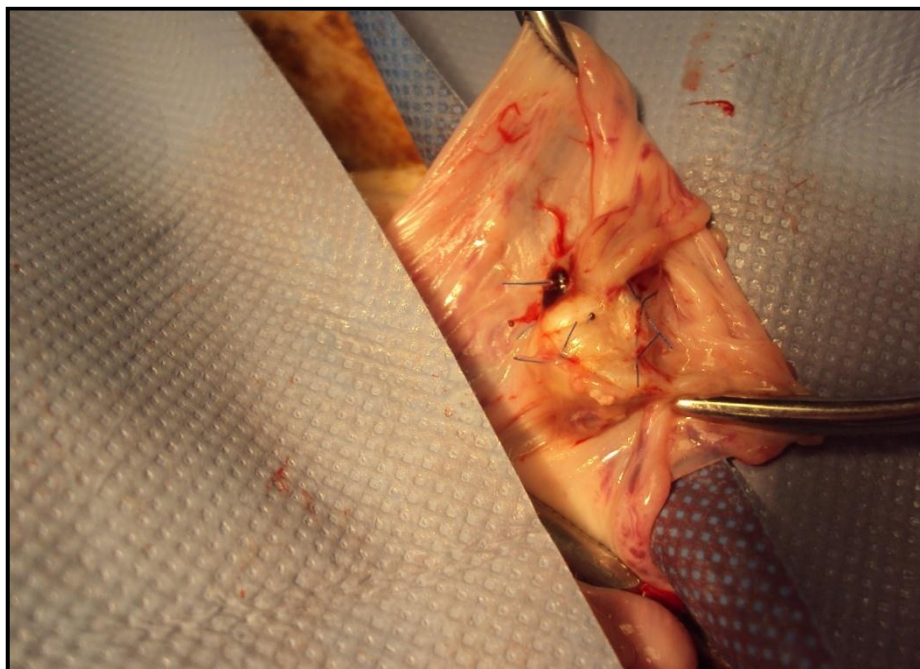


Figure (36):The robotic graft upon harvesting

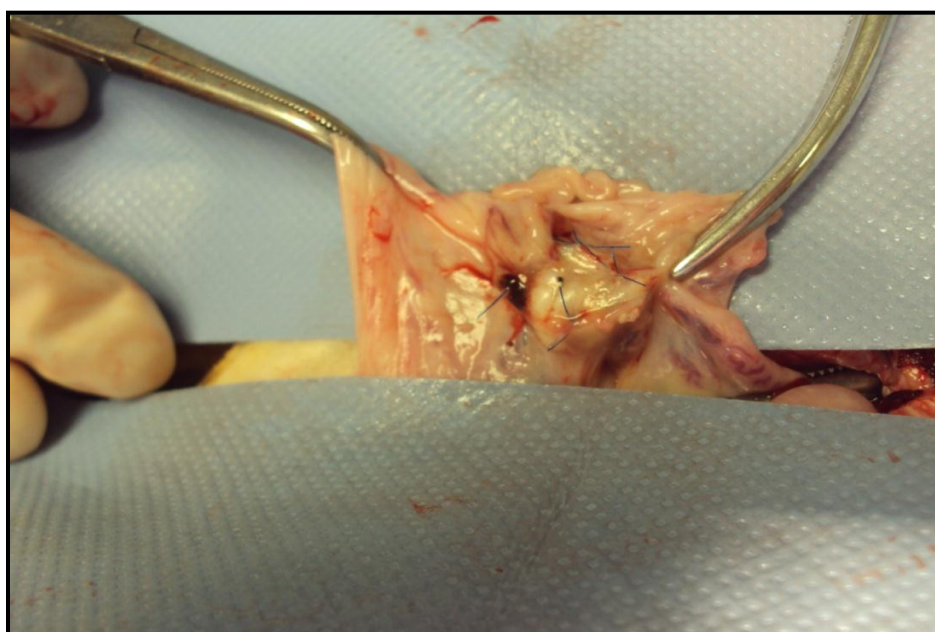


Figure (37): The graft appears healthy with no necrosis

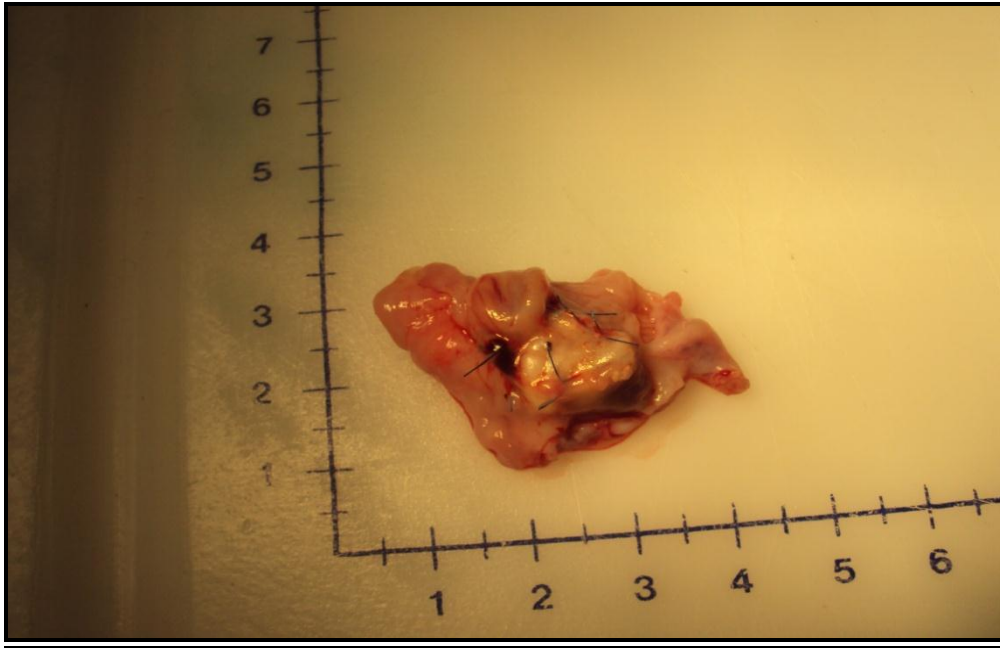


Figure (38):The whole ovary after removal from the animal with intact graft

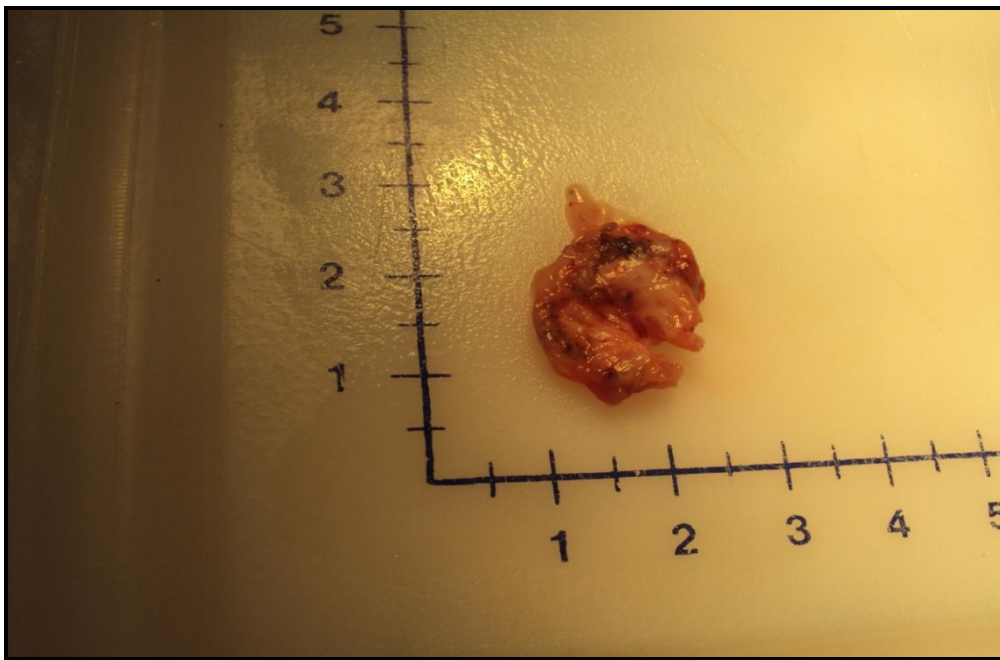


Figure (39):The removed transplant from the ovary

Table (11): Overall Project Summary

<u>Factor</u>	<u>Level</u>	<u>Total</u>	<u>Statistics</u>
Total operative Time in Minutes ^a		7	65 (64, 76.5)
Actual Suturing Time in Minutes ^a		7	32 (27.5, 76.5)
Suture Type ^b		7	
	5-0 Prolene	2	28.57%
	8-0 Prolene	4	57.14%
	8-0 Prolene	1	14.29%
Number of Sutures ^b		7	
	4 Sutures	1	14.29%
	5 Sutures	2	28.57%
	6 Sutures	3	42.86%
	7 Sutures	1	14.29%
Gross Picture of the Graft ^b			
	Completely separated from the Ovary	1	14.29%
	Healthy-Completely attached	4	57.14%
	Partially attached	2	28.57%

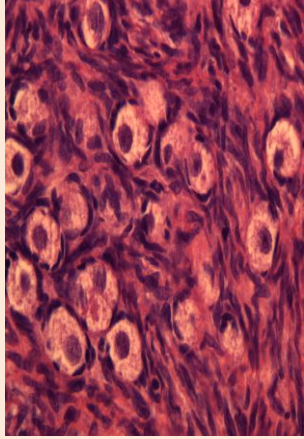
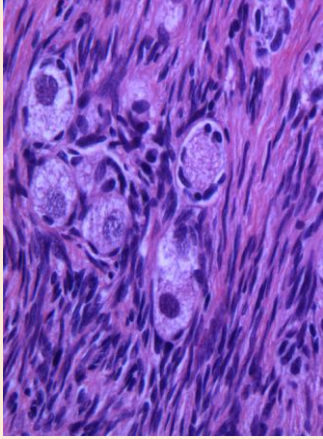
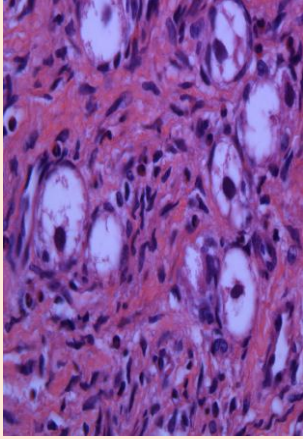
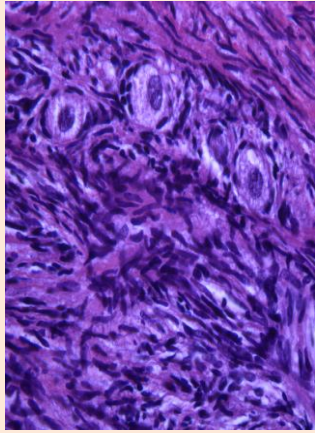
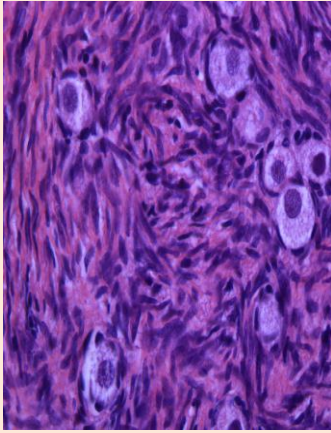
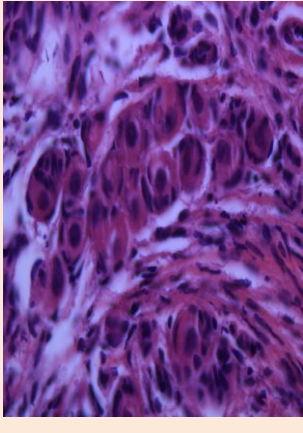
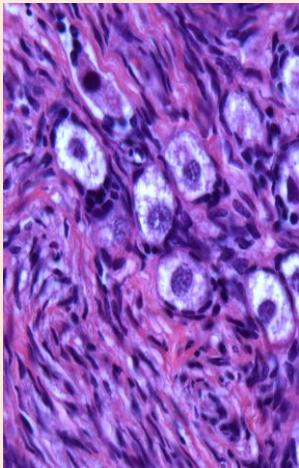
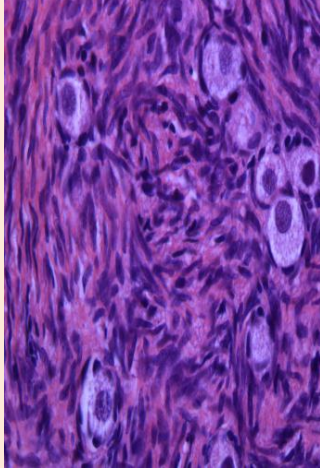
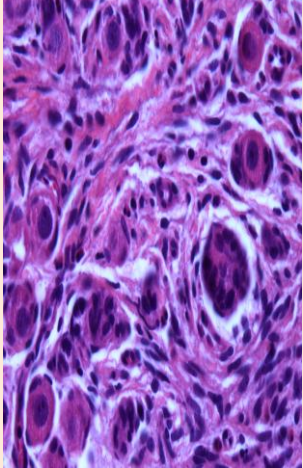
^a Median (P25, P75) ; ^b Per

Table (12): Subject Summary by Transplant Type

			<u>Laparoscopic</u>	<u>Open</u>	<u>Robotic</u>
<u>Factor</u>	<u>Level</u>	<u>Total</u>	<u>Statistics</u>	<u>Statistics</u>	<u>Statistics</u>
Total operative Time in Minutes ^a		7	86.5 (85.75, 87.25)	65 (65, 65)	64 (61.75, 65.75)
Actual Suturing Time in Minutes ^a		7	42 (42, 42)	12 (12, 12)	30.5 (28.25, 32.75)
Suture Type ^b		7			
	5-0 Prolene	2	100%	0	0
	8-0 Prolene	4	0	0	100%
	8-0 Prolene	1	0	100%	0
Number of Sutures ^b		7			
	4 Sutures	1	100%	0	0
	5 Sutures	2	50%	0	50%
	6 Sutures	3	0	0	100%
	7 Sutures	1	0	100%	0
Gross Picture of the Graft ^b		7			
	Completely separated from the Ovary	1	0	0	100%
	Healthy- Completely attached	4	25%	25%	50%
	Partially attached	2	50%	0	50%

a Median [P25, P75]; b Percentage
 F: Fisher's Exact Test for Count Data
 K: Kruskal-Wallis rank sum test

Table (13): H&E staining of different ovarian tissue types in each poocedure showing ovarian follicles

Type of surgery	Fresh	Frozen Thawed	Graft
Robotic			
Laparoscopic			
Open			

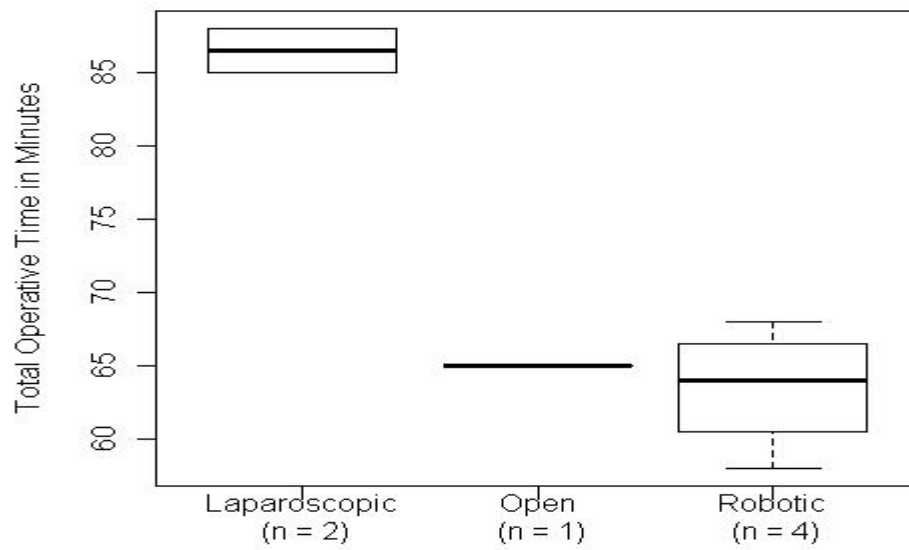


Figure (40): Total Operative Time by Transplant Type

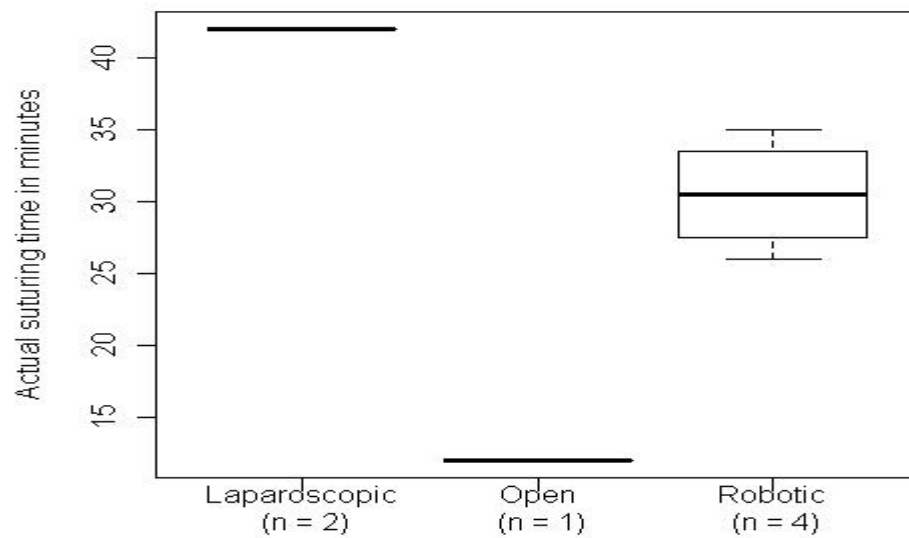


Figure (41): Total Suturing Time by Transplant Type

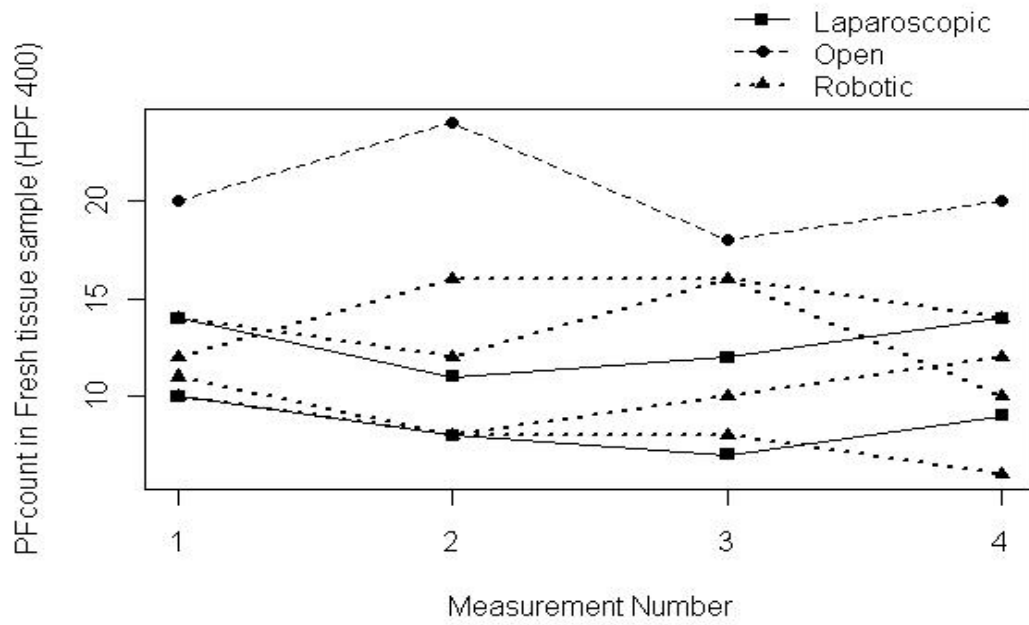


Figure (42): Follicular count in Fresh tissue sample (HPF 400)

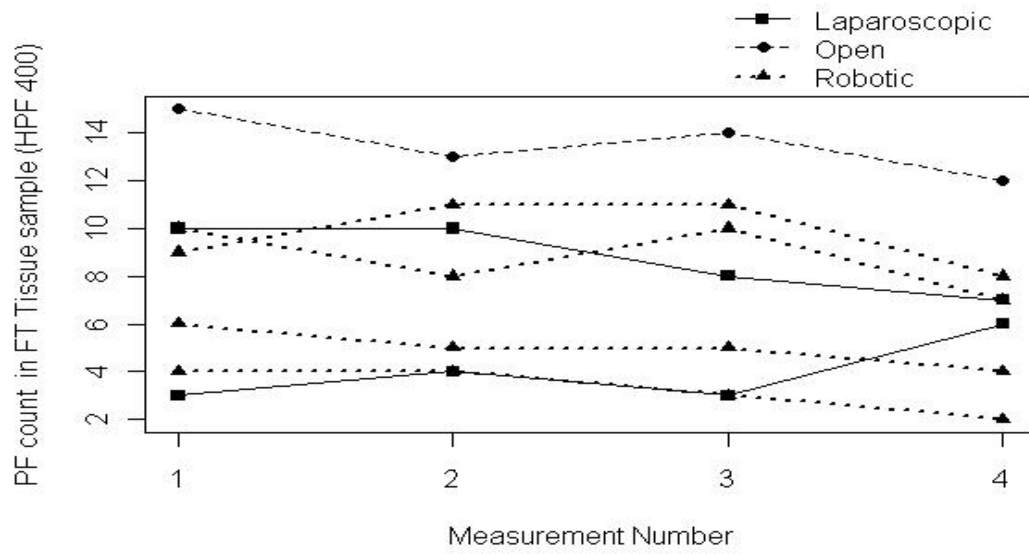


Figure (43): Follicular count in FT Tissue sample (HPF 400)

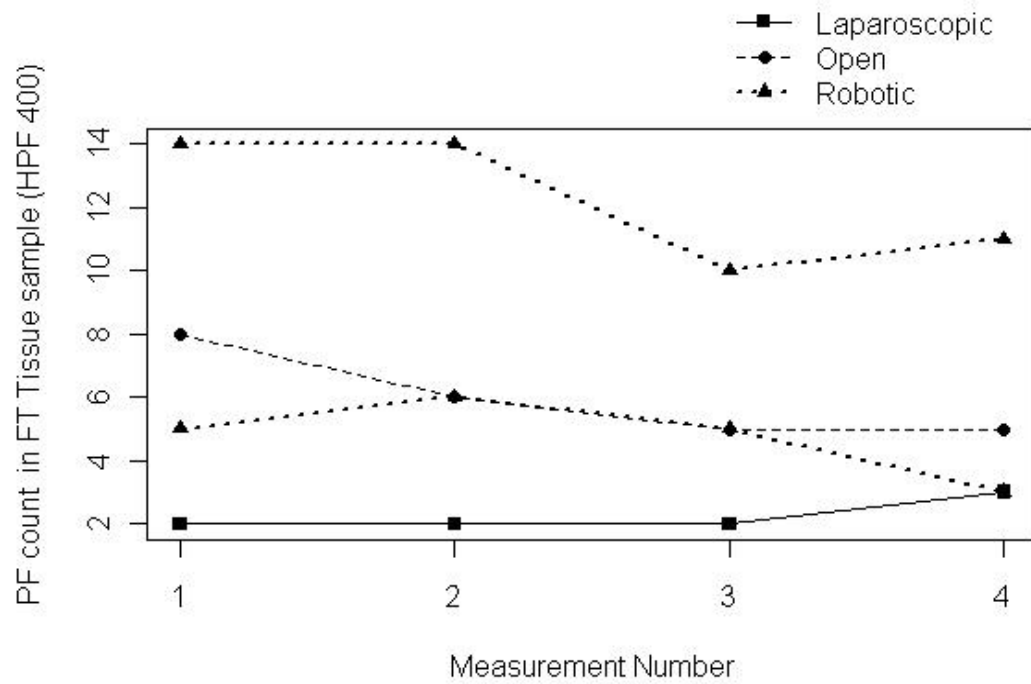


Figure (44): Follicular count in the graft (HPF 400)