

ORIGINAL ARTICLE

Previous Abdomen-Pelvic Surgeries in Infertility patients, their Effects on Tubal Factor Infertility and Safety of Laparoscopy in these patients

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ABSTRACT

Aim: To see the types of previous abdomen pelvic surgeries, tubal factor involvement and safety of laparoscopy in infertile patients.

Study design: This was a retrospective cross sectional study

Place and duration: The study was conducted at Health Care Center Hospital pvt Ltd from July 2020 to June 2022.

Methods: All patients with primary or secondary infertility who had history of abdomen- pelvic surgeries were included. Patients who had midline abdominal scar extending above umbilicus were excluded. Data was collected from hospital records and analyzed by SPSS version 25.

Results: Pelvic adhesions were present in 50(48.5%) patients. Supra pubic transverse incision had 46.7% (24/60) adhesions and 50% (2/4) adhesions were seen in midline incision. 46 (45.06%) patient had tubal pathology. There was no access related injury to omentum or bowel. Access to peritoneal cavity was 100% and no conversion to laparotomy. There was no delayed complications necessitating to reopen.

Conclusion: Laparoscopy is safe in patients who had previous abdominal and pelvic surgery. Microsurgical techniques should be learnt to avoid complications.

Keywords: Infertility, Laparoscopy, Abdomen- pelvic surgery, Adhesions.

INTRODUCTION

Subfertility is inability to have child when needed¹. Infertility remains a neglected area in sexual health². More than 70 million couples all over the world suffer from infertility³. Each year 12.7% of female in USA seek treatment for infertility⁴. In Pakistan prevalence is 21%⁵. Female factor is common⁶. Among female factors tubal factor is the most important factor specially in secondary infertility⁷. Multiple factors can affect tubal function by interfering with myosalpinx like PID and endometriosis^{8,9}. Endometriosis causes damage to pelvic organs by forming adhesions¹⁰. Pelvic adhesions are the most important factor interfering with tubal function and causing female infertility¹¹.

Previous abdomen- pelvic surgery, both gynecological and non gynecological, has a major role in adhesion formation^{11,12}. In peritoneal defect there is increase fibroblast migration and adhesions are formed that affect tubal function¹¹. Abdominal surgery either midline or transverse supra pubic incision, increases the risk of adhesion formation specially midline incisions are more related to adhesion formation to anterior abdominal wall. Pelvic surgery for gynecological procedures is the most important for tubal factor infertility¹³.

Risk of adhesions after laparotomy is upto 94%. Laparoscopy also causes adhesion formation but they are less extensive as compared to laparotomy because of less tissue trauma¹⁴. Adhesions cannot be prevented despite the use of microsurgical techniques¹¹.

Previously HSG was used to assess tubal patency. In advanced era laparoscopy is considered better to evaluate tubal factor. It is gold standard to see the tubal status and other pelvic pathologies as well¹⁵. Laparoscopy is convenient and low cost with early recovery. Infertility is the main indication for laparoscopic surgery¹⁶.

In patients with history of previous abdomen-pelvic surgeries there is a risk of complications because of adhesion formations¹⁷. In conventional laparoscopy veress needle is inserted blindly. In these patients insertion of veress needle and trocar may pose difficulty so there is a risk of vascular or bowel injuries. Sometimes

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these injuries are not detected intra operatively and later present with complications and need laparotomy¹⁸. If detected intraoperatively then converted to open surgery. Therefore laparoscopy in these patients is always challenging, needs expertise and timely recognition of complications¹⁸.

This study was conducted in infertile patients to see the indications previous abdomen pelvic surgeries, their effect on tubal factor infertility and safety of laparoscopy in these patients.

MATERIAL AND METHOD

This was a retrospective cross sectional study conducted at Health Care Center Hospital (Pvt.) Ltd. The study was conducted from July 2020 to June 2022. Sample size of 103 calculated with 95% confidence level, 8% margin of error and expected percentage of adhesions to be present in 78% of patients having history of previous surgery²⁴. Permission was taken from hospital ethical committee. All patients with primary or secondary infertility who had history of abdomen- pelvic surgeries, obstetrical, gynecological or non gynecological were included in this study. Patients who had midline abdominal scar extending above umbilicus were excluded. Data was collected from hospital records. Histories were reviewed from file notes. Abdominal skin scar was noted. Data was put on preformed Performa and analyzed by SPSS version 25. Frequencies were checked by percentages and ratios. Results were shown by using tables.

RESULTS

Total 103 patients were included. 40(38.8%) patients had primary and 63(61.2%) had secondary infertility. 31(30.1%) patients had cesarean section, 33(32%) patient had laparotomies for gynecological indications like ectopic pregnancy, ovarian cysts, endometriosis and fibroid uterus. Non gynecological procedures were laparotomies for appendectomies, gunshot injury and cholecystectomy in 36(35%) patients. Three patients had laparoscopy in past.

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Table 1: Infertility type and Obs & Gynae Indications of previous surgeries (n=103)

Infertility type/indication of surgery	n	%age
Primary infertility	40/103	38.8%
Secondary infertility	63/103	61.2%
Cesarean section	31/103	30.1%
Laparotomy	33/103	32.0%
Ectopic Pregnancy	12/33	36.4%
Ovarian cysts	12/33	06.4%
Endometriosis	06/33	18.2%
Myomectomy	03/33	09.1%
Laparoscopy	03/103	02.9%

Table 2: Non gynecological indications of previous surgery.

Indication	n	%age
Non gynecological cases	36/103	35.0%
Appendectomy	30/36	83.3%
Cholecystectomy	05/36	13.9%
Laparotomy for gun- shot injury	01/36	02.8%

Table 3: Intra- op findings

Findings / complications	n	%age
Adhesions	50/103	48.5%
Mild	30/50	60.0%
Moderate	16/50	32.0%
Severe	04/50	08.0%
Suprapubic incision	24/60	46.7%
Midline incision	02/04	50%
Tubal pathology	46/103	45.06%
Block Tubes	28/46	60.9%
Hydrosalpinx with delayed spill	12/46	26.1%
Partial block (one tube)	06/46	13%

Table 4: Complications

Entry related injury	No
Conversion to open surgery	No
Delayed complications	No

Pelvic adhesions were present in 50(48.5%) patients. 60% adhesions were mild, 32% moderate and 08% severe. Supra pubic transverse incision had 46.7% (24/60) adhesions and 50% (2/4) adhesions were seen in midline incision. Andrew showed 27.1% and 56.9% in Pfannenstiel and midline incision respectively.

Tubal pathology in 46(45.06%) patients. There was no access related injury to omentum or bowel. Access to peritoneal cavity was 100% and no conversion to laparotomy. There was no delayed complications necessitating reopening.

DISCUSSION

In this retrospective study 103 patients with infertility were included who had previous abdominal or pelvic surgeries. 40(38.8%) patients had primary infertility and 63(61.2%) had secondary infertility. Comparable results were shown in study by Bala M¹⁹.

The most common indication of previous surgery was cesarean section in 31 patients. It is common conception that c/s increases the rate of infertility. Study by Hasina shows association of cesarean section with secondary infertility²⁰.

Thirty three laparotomies were done for gynecological indications, 12 for ectopic pregnancy¹² for ovarian cysts, 06 for endometriosis and 3 for myomectomies. Studies show that ectopic pregnancy, endometriosis and Pelvic surgery are associated with infertility²¹.

Three patient had history of laparoscopy, two for ectopic pregnancy and one for investigation of infertility but had lost her record. No adhesions were seen in these patients. Vicksenpellion stated 21.2% adhesions on under umbilicus in patients who had previous laparoscopy²². This difference may be because of small sample size in our study.

Among non gynecological 36(35%) procedures, appendectomy was the most common indication of pelvic surgery in 30 cases, one laparotomy done for gunshot injury and 05

werecholecystectomies. Appendectomy causes infertility by forming peri-ovarian and peri-tubal adhesions²³. There should be care full decision for surgical management of appendicitis in young females keeping in view compromised future fertility.

Over all adhesions were present in 50(48.5%) patients. Nutun found adhesions in 78% of patients after previous surgery²⁴. Minor adhesions were present in 30(62%), moderate in 16(32%), sever in 04(08%). Tarek had comparable results¹⁷. Anterior abdominal wall adhesions were seen in 43(87.6%) of patients involving omentum. Bowel involvement was seen in 6(12.2%). Similar results were obtained by M.D. Seth²⁵. Indication of previous surgery was not related to adhesion formation rather type of incision and extent of tissue damage has the correlation with adhesions²⁶.

Tubal pathology was seen in 46(45.06%) patients. John R presented different results²⁷. In 28 patients fallopian tubes were blocked, 12 were dilated with delayed spill and 06 patients had partial tubal block. Study by Emile showed 41.5% patients had hydrosalpinx with blocked tubes¹⁶.

There was 100% access to peritoneal cavity. Similar results were seen in study by Tarek¹⁷. There was no access related injury and no case was converted to open surgery. Study by Tarek had 2 conversions to open surgery because of dense adhesions¹⁷. No delayed complications were seen in any patient and none needed reoperation.

CONCLUSION

Abdomen pelvic surgeries are a major cause of intra abdominal adhesions formation. These adhesions can lead to infertility on one hand and can cause difficulty and access related injury in infertility laparoscopy on the other hand. But still laparoscopy is a safe procedure and can be performed successfully by skilled hands. Careful selection of patients and good surgical techniques in this case is a pre requisite to avoid complications.

Recommendations: Undue pelvic surgeries in young females should be discouraged because of future fertility implications. If surgery is unavoidable then good surgical techniques should be practiced. Laparoscopic should be performed by experienced surgeon.

Conflict of interest: Nil

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