

# Analysis of 188 Cases of Laparoscopic Diagnosis of Infertility

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## Abstract

In this paper, we have applied ventroscopy in diagnosing and curing of acyesis. We had gathered 188 cases of ventroscopy about acyesis from February 2006 to December 2009 in our hospital. The effect showed that there were 115 acyesis cases caused by fallopian tube factor, which ranks first. And there were 35 acyesis cases caused by endometriosis, which ranks second. Other acyesis cases number was 23. About 48.9% patients in those 188 cases were pregnant after being cured. So, we can diagnose the reason of acyesis in time by means of ventroscopy.

**Index Terms:** Peritoneoscope; Acyesis; Curative effect

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## 1. INTRODUCTION

In these days, acyesis has been common in gynecologic disease. Because the reason of acyesis is very complex, so according the factors which can cause acyesis, it can be divided into three classes: functional sterility, immune infertility and organic sterility. The diagnosis about acyesis has been improved greatly since we started to use peritoneoscope technology. To those acyesis cases whose reasons are not clear, peritoneoscope has shown its superiority many times. So, many hospitals have used ventroscopy as routine examination. The once easy operation in peritoneoscope has been performed completely with laparoscopy. Some organic pathological changes of acyesis patients can be diagnosed and cured with laparoscopy.[1] The reasons of acyesis are very complex, it is difficult to diagnose correctly by using ordinary examining methods. This can cause blindness curing. In this paper, we have discussed the application of laparoscopy in acyesis reasons.

## 2. Documents and methods

### A. Cases

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188 pieces of acyesis patients whose age from 21 to 39, and the average age is 27 years old. In those patients, the shortest acyesis time was two years, and the longest was ten years. About 72 cases belonged to primary infertility, and the rest belonged to secondary infertility. All the patients had been examined at the common method, and their husbands' spermatic fluid is normal, which can remove the husbands' factors. The curing of hydrotubation and ovulation induction treatment all had no effect.

#### *B. Device of ventroscopy*

In our hospital, we mainly used laparoscopy & monitoring system which produced by Storz Corporation, CO<sub>2</sub> insufflator, cold light source and hydrotubator.

#### *C. Checking process of ventroscopy*

Usually, we use ventroscopy to check patients when they are in proliferative stage of menstruation which is the best time.

We use continuous epidural anesthesia and heart rate monitoring. When we start to check, we first create a 10mm size incision which is square and vertical below navel chakra. After the buccal cavity being pierced by veress needle, CO<sub>2</sub> will be full in buccal cavity. Then we put endoscope into abdominopelvic cavity after puncturing successfully. We also need to put surgical instruments into left lower quadran and right lower quadran. Then we can test two fallopian tubes whether are passable.[2]

The diagnosing rules: We can consider the patient suffers from salpingitis if there is bonding in uterus, fallopian tube and ovary; or the impassable fallopian tube can't be passable after be pressed by general testing press. We also usually consider the patient suffers from endometriosis uterine when we see endometrium in the pouch of Douglas, utero-sacral ligament, fallopian tube and ovary. And we consider the patient suffers from Stein-Leventhal syndrome when the two fallopian tubes are bigger than normal, there are more follicles, and the preovulatory follicle, hole of ovulation are all can't be seen.

#### *D. Curing and follow-up visit*

The 188 cases about acyesis have been diagnosed by means of peritoneoscope, and we have implemented shaping procedure. We have treated salpingitis with hot compress and massage, injected abdominopelvic cavity one or two times after the menses had been passed seven days. All these measures will not be stopped until they are pregnant. The patients who suffered from endometriosis uterine should be treated for three periods by using GnRH-a. Those patients who suffered from Stein-Leventhal syndrome should be treated three periods by combining traditional Chinese and western medicine.[3] We have recorded the pregnant time and ending time during the process.

#### *E. Processing of statistics*

The dada processing should be used  $\chi^2$  examining, and the statistics data will be meaningful when  $P < 0.05$ .

### **3. Results**

Table 1 shows the checked pelvic cavity about 188 cases about acyesis patients. The number of pelvic cavity lesion is 175, and the proportion is 93.1% of total cases. The proportions of primary infertility and secondary infertility are 54.2% and 65.5% respectively, which are the main reasons of acyesis. The proportion of primary infertility is higher than the proportion of secondary infertility obviously. These two kinds of statistics have great significance ( $\chi^2=4.7003$ ,  $P < 0.05$ ). And the others lesions statistics are not important ( $P > 0.05$ ).

TABLE I. 188 CASES DIAGNOSING OF VENTROSCOPY (%)

Types of lesions	secondary infertility	primary infertility	Number of cases
<b>Pelvic cavity adhesion</b>	78 (67.2)	37 (51.4)	115
<b>Pelvic cavity endometriosis uterina</b>	21 (18.1)	14 (19.4)	35
<b>Benign cyst in an ovary</b>	9 (7.8)	6 (8.3)	15
<b>polycystic ovary</b>	2 (1.7)	1 (1.4)	3
<b>hysteromyoma</b>	4 (3.4)	3 (4.2)	7
<b>Normal pelvic cavity</b>	2 (1.7)	11 (15.3)	13
<b>Total</b>	116	72	188

Table 2 shows the types and numbers about laparoscopic surgery.

TABLE II. TYPES OF LAPAROSCOPIC SURGERY

Types	Number
<b>Lysis of pelvic adhesions</b>	107
<b>Plastic operation of salpingostomy</b>	31
<b>Electrocautery of pelvic cavity endometriosis uterina</b>	12
<b>Removing operation of ovary cyst</b>	15
<b>Removing operation of hysteromyoma</b>	7
<b>Drilling operation of ovary</b>	3
<b>Total</b>	175

After being checked by means of ventroscopy, there were 115 cases with pelvic inflammatory disease (61.2%), and 53 cases patients had been pregnant after being cured (46.1%); there were 35 cases with endometriosis uterine (18.6%), the number of them had been pregnant after be cured is 24; there were 15 cases with ovary cyst (8%), and 8 cases patients had been pregnant; there were 3 cases with Stein-Leventhal syndrome (1.6%), and two of them had been pregnant after being cured. About 5 cases patients had been pregnant in 20 cases with unclear reasons (10.6%). The total pregnancy proportion is 48.9%. [4]

#### 4. Analysis

The reasons about barrenness are very complex. The main reasons which caused by female consist of ovary factors, fallopian tube factor, uterus factor and immunity factor. Usually, it is difficult to diagnose barrenness. The common methods include hysterosalpingography (HSG), measuring fundamental temperature, and monitoring ovulation by B ultrasound scanning and dilatation and curettage of uterine (D&C). Every checking method has its own limitations, and costs long time. Many barrenness patients can't be diagnosed after long-time checking. Even some patients have been misdiagnosed when they were checked by hysterosalpingography (HSG). In our medical group, we once met 11 cases patients who had been misdiagnosed when using hysterosalpingography, and the two side fallopian tubes had been passable after the test with Methylene Blue.

About one third cases caused by this reason. Usually, the common method can't diagnose the disease of endometriosis uterine, but ventroscopy can do it well.

Some barrenness reasons can be found by means of ventroscopy, and we must pay attention to check during the process of checking.

#### *A. Flushing test by peritoneoscope*

Tubal infertility is always the common pathogeny in all infertility diseases. We can depend on flushing test by peritoneoscope by means of 20ml NS liquid whose density is 0.9% and 0.5 ml Methylene Blue. We should observe the whole process of Methylene Blue liquid passes the two side fallopian tubes, and we can diagnose that whether the fallopian tubes are unobstructed, and we also can know that the degree of fallopian tubes' peristalsis and the location of obstruction. The whole test can correct the wrong diagnosis of false positive by using hysterosalpingography (HSG). Flushing test by peritoneoscope can be used to diagnose fallopian tube obstruction directly and correctly, which is fit for fallopian tube anaplasty case.[5]

#### *B. Chronic pelvic inflammatory disease*

About 50% of patients with barrenness during the process of using peritoneoscope suffered from chronic inflammation in the internal reproductive organs, such as tubal adhesive, distortion, bending, close and hydrops. Sometimes there is straw yellow water vacuole on chorion surface and there is a little straw yellow effusion in DIPI.[6] But the most diseases are pelvic cavity adhesion and adhesive band with different forms. However, about one third of the patients with this kind of disease don't sense anything in usual.

#### *C. Endometriosis of pelvis*

Some researches show that there are 30% or 40% cases of barrenness belong to endometriosis of pelvis. The unusual focuses which found during the process of ventroscopy are mostly sub clinical types. Most of these kinds of patients almost all have the obvious clinical manifestations. By using peritoneoscope, we have seen that the color of utero-sacral ligament, DIPI, peritoneum, ligament posterior lobe, surface of ovary and perimetrium are hyacinthine. And we also have observed that there were existed yellow, red and white focuses or peritoneum fold. The ovary was bigger than normal, which has been formed a chocolate-color cyst. And it also it was also connected with adhesive band, womb, annexa uteri, epiploon and intestinal tube. Usually, the serious pelvic cavity adherence unsmooth oviducts are the important characteristic. We can find that there is dated noncondensing blood in DIPI after the patients' menses have been passed three or five days. Sometimes, it is helpful to diagnose by getting biopsy during the process of ventroscopy. Ventroscopy is very important when it is used to diagnose endometriosis. The early endometriosis is usually focused on the surface of peritoneum. With the progression of disease, it affects it's around tissue, which can cause the formation of pelvic cavity adherence and chocolate-color cyst. The main reasons which cause barrenness include: moderate and severe endometriosis can damage the normal pelvic structure. For example, the adherence between uterus and rectum can cause retrodisplacement; the adherence of fallopian tube ending can cause the depression of collecting egg function; the acyesis which caused by moderate endometriosis uterine maybe formed by active macrophage.

At present, most of specialists think that surgery is the chief measure to cure endometriosis uterine. And they think that time is the dangerous factor which cause endometriosis uterine. So the patient can be cured well if the disease be found early. Many foreign specialists such as Morita have found that the fresh and active endometriosis uterine is better than dated one. In 1990s, the specialists of Canada have found that although the acyesis which caused by the longitudinal endometriosis uterine has been delayed, the peritoneoscope surgery can reprove sufferer's gestation. The sufferers with endometriosis, especially the early sufferers, they always almost have not any clinic manifestation, such as dysmenorrheal, bellyache and retrodisplacement. And it is difficult to find the early ectopic focus by purely depending on clinic manifestation, type-B ultrasonic and some other accessory examination.[7] These kinds of sufferers needn't have the characteristics of surgery, and they only can be diagnosed by means of ventroscopy. The television ventroscopy surgery has good visual angle, we can find

the estopic focus about rectum uterus pouch, utero-sacral ligament and ligament posterior lobe easily. Now, ventroscopy surgery has been the standard when diagnosing endometriosis. At the same time, ventroscopy surgery can cure it by means of all kinds of different surgical instruments, which can make sufferers avoid taking long-time medicines after surgery.

The effect of peritoneum-type endometriosis surgery is better than the surgery of ovary endometriosis cyst. The effect of pure endometriosis surgery is better than the surgery of utero-sacral ligament. And the comparing difference between the surgery two-side ovary endometriosis and single-side ovary endometriosis hasn't any obvious statistical meaning. So, the effect of early endometriosis surgery by means of peritoneoscope is better than the surgery which not only has endometriosis, but also has ovary cyst. And the peritoneum-type endometriosis only can be found during the process of ventroscopy. So we should use peritoneoscope to diagnose the sufferers with acyesis as soon as we can.

By dividing endometriosis into peritoneum-type endometriosis and ovary endometriosis with cyst type can help us to diagnose and cure. From the distribution of sufferers' pregnancy time after they have been cured, we can find that the pregnancy chance will be reduced greatly after the surgery one year and one and a half years. So, we should try our best to instruct the sufferers after they have been cured. If they still haven't been pregnant after these time, and this shows that some other factors are still affecting them, and we should use other curing methods.

#### *D. Pelvic tuberculosis*

We can find pelvic viscera adherence by means of peritoneoscope surgery. Fallopian tube is always obstructed or inflexible, which just like a string of beads. We can find the typical tuberculosis focus by means of biopsy, and most parts of fallopian tube are obstructed.

#### *E. Uterine malformation*

Depending on peritoneoscope surgery, we can find hypoplasia of uterus, saddle form uterus, uterus bicornis and rudimentary horn of uterus. We also can find that there is a muscular tuberculum between uterus' two-side annexas.

#### *F. Observing ovary by means of peritoneoscope*

Some patients who suffer sterility disease also have menstrual disorder. And we can diagnose their sexual gland function by using peritoneoscope. Female sexual gland can be divided into the following types: normal ovary whose shape and size are all normal; small ovary; streak ovary; atrophic ovary; sclerosing polycystic ovary; ovariectomia; mixed-type sex gland agenesis. We can diagnose the disease of indurascant polyovularfollicle by means of peritoneoscope. We can know the reasons of sterility by combing internal secretion and pathology. And we also can know the function about ovary and thalamencephalon.

### **5. Conclusions**

According to the clinic practice in these several years, there are several kinds of surgeries by using peritoneoscope:

#### *A. Lysis surgery of pelvic adhesive*

The peritoneoscope surgery can keep the temperature and humidity of pelvic adhesive constant, which can reduce the excitation of viscera and pelvic adhesive relatively. On the other hand, the functions of strong illumination and magnifying of lens body not only can reduce the adhesive again, but also is convenient to operate, even the tiny pathological changes. During the process of surgery, we mainly use surgical scissors with

electric coagulation to separate the adhesive between organs and cut all kinds of adhesives, which restores the viscera's position. The ovary will be exposed and fixed the end by removing tubal adhesive.

#### *B. Clear of endometriosis focus*

The tiny focus can be cleared by using fulgerize or laser. To the endometrial cysts with different size, we can absorb the substance in cysts by puncturing and then cut them. But the endometrial cysts should be peeled entirely, and we should try our best to hold more normal ovary tissue, which can avoid the adhesive again after surgery. Usually, the disease can be divided into two types: peritoneum type of endometriosis and endometrial cyst type, we can cure by using fulgerize and cyst removing surgery. The peritoneum type of endometriosis means that the focuses lie on the surface of peritoneum. Most of them are punctiform, hydatidiform or nodositas, and locate Jarjavay's ligaments or rectouterine pouch, which are cardinal red, violet, brown or coffee. If we find these focuses during the process of surgery, we should damage them instantly by means of fulgerize surgery.

The ovary endometrial cysts usually locate the area where in the back of womb and Jarjavay's ligaments. We can separate the adhesive firstly if the cysts are small. We always puncture those cysts before separation, and find the interface between cysts' wall and normal ovary tissue after the coffee cysts' liquid outflow. Then we remove the cysts from ovary tissue entirely by means of elastic separating plier. If the cysts are big, we often cut ovary envelope firstly by means of electric coagulation forceps, then separate ovary envelope from cysts' wall. At last, we remove the cysts' wall from ovary tissue entirely. The residual ovary tissue will be seamed by means of 2/0 absorbable suture, then a new ovary will be formed.

#### *C. Salpingostomy*

According to fimbriated extremity of fallopian adherence, we firstly loosen the adherence between fallopian tube and it's around tissue, which can restore the normal position. Then we inject water into fallopian tube, which can expand it. And the fimbriated extremity of fallopian can be restored by separating after being pressured. If the surgery has been failed, we can use electrode to cut the end of fimbriated extremity of fallopian. The incision should be big, and it is necessary to cut the end, which forms a artificial fimbriated extremity of fallopian.

#### *D. Ovary punching surgery*

Multicystic ovary can be cured by means of peritoneoscope. The number of punching shouldn't be too much. Usually, every side of ovary should have four holes in accordance with the patients' ovary size. The power of electric coagulation shouldn't be big, and 30W can meet well. The operation is very easy. [8]

In all 188 cases patients with disease of sterility, the initial reason is fallopian tube factor, the second is endometriosis and the third is ovary benign cyst. The total pregnancy of those 188 cases patients is 48.9%. The patients' pregnancy which caused by endometriosis is 68.6%, and it is the fast. The second is 66.7% which caused by ovary benign cyst. Peritoneoscope surgery is a kind of easy, rapid and exact method when it is used to examine the reason of sterility. With the development of instrument of peritoneoscope device and the gather of clinic experience, this kind of technology is more and more important to diagnose and cure the disease of sterility.

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