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Original Article,

The Possibility of Laparoscopic Cystectomy for Large Ovarian Dermoid Cyst in Young Age

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Abstract

Study Object: To evaluate the possibility of laparoscopic cystectomy for large ovarian dermoid cyst in young age. Laparotomy usually has been performed for it due to small abdomen and spillage.
Materials and Methods: The patients below 15 years-old were 33 of 71 patients. Large cyst (above 6 cm) were 15 of 33 patients. Intervention: The cysts classified to type A and type B according to contents. Type A has more fluid content than thick non-fluid content, and type B is opposite. In type A, cystectomy was modified to minimize the spillage of content by aspiration and suture before dissection of cyst and by immediate suction with suture for rupture. In below 15 years-old, Type A was 27 of 33 patients (81.8%) compared to 5 of 38 (13.2%) in older age ($p<0.01$).
Results: In type A cysts during the operation, no rupture was 28 of 32 patients (87.5%) and ruptures but no spillage to abdomen were 4 (12.5%) and spillage case was none. However, in type B ($p<0.05$), no rupture was 23 of 39 (58.2%) and rupture but no spillage was 13 of 34.2 (34.2%) and the spillage was 3 of 39 (7.6%). In patients below 15 years-old, all 15 patients with cysts above 6 cm were type A compared to 12 of 18 (66.7%) with the smaller cysts ($p<0.01$). The spillage rates in below 16 years-old were no rupture 1 of 33 (3.0%), ruptures but no spillage 3 of 33 (88%) compared to in 38 older age patients (12.6%, 34.4% and 53%; $p<0.05$).
Conclusions: Large dermoid cysts in young age has more fluid contents and modified operation to minimize spillage can be possible. Therefore, even in large dermoid cyst of young age, laparoscopic cystectomy is possible and sometimes easier than old age.

Keywords:laparoscopic cystectomy, Large ovarian dermoid cyst, young age

Introduction:-

The dermoid cyst occupies 15% among all the ovarian tumor, is the single most common ovarian neoplasm (44%), is occurred in bilaterally 10-15%, and is also occurred quite in a young age. Almost of dermoid cyst shows a benign tumor, but because 1-3% of them shows a malignant variation, 10-16% of them shows adnexa torsion, and 0.7-1.3% of them may cause acute abdomen by the rupture, it should be removed if diagnosed.
Because it is frequented especially in young women, laparotomic cystectomy has been accepted as treatment of dermoid cyst to preserve maximal ovarian tissue. Recently, as the laparoscopic operation -the pain and the complication is fewer and its
recovery is rapider and it is good for beauty after the operation- is developed, it tends to attempt the laparoscopic operation in the treatment of dermoid cyst. On the characteristics of cystic contents, because if it is flowed into the peritoneal cavity various complications such as adhesion and granulation may be caused and complete removal of spillage contents is difficult, operator should minimize intraperitoneal spillage during operation. The dermoid cyst is frequented even in young aged women under 20 years old, if the size of cyst is large in the young women, the leakage

of contents in peritoneal cavity is frequented because of relative small peritoneal cavity volume in the young women.

Thus, because there is a danger for them to occur the complication by the leakage of contents in case of large dermoid cyst in the young women, there have been more cases to adopt the laparotomic operation than the laparoscopic operation from the past. But we observed during operation that dermoid cyst in the young women, unlike the adults who have a lot of the sebum and the solid material, almost cases have more fluid contents. Even in large dermoid cyst of young age, laparoscopic cystectomy may be possible if we performed cystectomy after aspiration of cystic contents.

Thus, the authors checked the differences between the content of the cysts by the ages and sizes with the objects of the 71 patients who visited the Chonnam University Hospital and diagnosed as the ovarian benign dermoid cyst by the ultrasonography, computerized tomogram(CT), and magnetic resonance imagining(MRI), and the diagnostic laparoscopy. We also observe that whether the application of laparoscopic operation is possible or not even to the young women of quite large (>6 cm) dermoid cyst by applying the modified laparoscopic operation to minimize the spillage in peritoneal cavity.

Body Text:-

1.Objects

The objects of this study is 71 patients who visit the dept. of obstetrics and gynecology. Chonnam University from March, 1997 to June, 1998 and diagnosed as the ovarian benign dermoid cyst by the ultrasonography, computerized tomogram(CT), and magnetic resonance imagining(MRI), and the diagnostic laparoscopy. We classified these patients into 2 age groups; one is 33 ones of below 15 years old and the other 38 ones of over 15 years old, and also into 2 groups; one is that its size is over 6 cm and the other below 6 cm. Then, we classified whether its major content is fluid or sebum and solid material again. On the opinion of the laparoscopic operation and the ultrasonogram before the operation, we regard the case that the content is much shown as the fluid aspect as the A-type dermoid cyst and the case that there is a quite solid material or it is similar to the sebum rather than fluid one on the operation opinion and the ultrasonogram before the operation as the B-type dermoid cyst.

To minimize the spillage of cystic contents, we performed cystectomy by applying the modified laparoscopic operation by type of dermoid cyst. We reviewed the rate of A-type dermoid cyst that can minimize the spillage more in an age group of below 15 years old, and the rate of A-type dermoid cyst in the group of over 6 cm among this age group. After the operation, we observed that how this operation method can execute successfully without any spillage of cystic contents in the peritoneal cavity in the A-type dermoid cyst in the group of over 6 cm among the age group of below 15 years old and also observed that how the spillage of cystic contents is minimized with using the advanced operation method to minimize the spillage in peritoneal cavity more in the B-type dermoid cyst.

We adopted little different operation methods in the A-type and the B-type dermoid cyst by measuring the degree of fluid content in the cyst and its size through the ultrasonogram before operation, and exclude it in this study if malignant tumor is suspected in CT, MRI, or ultrasonogram and tumor marker (CA 125, CA 19-9, CA 72-4, AFP, hCG). We also exclude the cases which oophorectomy or hysterectomy and oophorectomy by other illness was executed simultaneously during operation and only included in the case that the dermoid cyst excision operation is executed.

2. Operation Method

After the general anesthesia, we let her pose the lithotomy position in the laparoscopic operation. We use the laparoscopic operation system made by the Wisap Co. in Germany installed the video camera system as the laparoscopic system such as the light and the CO2 supplier in this operation, and the used endoscopy was the 10 mm of products by the Wolf Co. in Germany and the visual angle of object glass were 0 degree. The 10 mm of trocar for peritoneal wall was inserted subumbilically and the three 5 mm of trocars were inserted in the center and both outer sides from the suprapubic area. The method of laparoscopic cystectomy is executed differently a little bit in the A-type and B-type dermoid cyst according to the opinion by the ultrasonogram and the aspects of cyst in diagnostic laparoscopy before the operation.

In case of the A-type dermoid cyst, first we cut only the ovarian serosa that covers the dermoid

cyst by using the needle bovie of cutting current in 30-40W of low current, second, make the ovarian serosa incision a little bit from the cystic wall, then, third, once aspirated the contents inside by using the aspirator connected with the 50 cc of needle, fourth, block the spillage of contents by grasping the inserted parts of insert needle with grasping forceps, and finally, make the contents not to leak during the dissection by letter 8-typed suturing with using the 4-0 polydioxan(PDS) with skin needle. After that, to separate the cystic wall from the ovary, we execute the dissection the plane between two with grasping the normal ovarian tissue with the grasping forceps and the cystic wall with other gasping forceps, then, by turning them carefully with opposite direction. If it was ruptured even a little during this dissection, we aspirated the contents immediately before it drops into the peritoneal cavity. And we continue the dissection after suturing the part with 4-0 PDS. In the case of B-type dermoid cyst, not trying to attempt the aspirated by the aspiration needle, first, we cut only the ovarian serosa that covers the dermoid cyst by using the needle bovie of cutting current in 30-40W of low current, second, we execute the dissection of cystic wall from the ovary carefully without any rupture of cyst by using the round-tipped grasping forceps, finally, as explained previously, we continue the dissection after suturing the part with 4-0 PDS if it was ruptured even a little during this dissection, and aspirated the contents immediately before it drops into the peritoneal cavity. After finishing the dissection, we changed the right trocar part with 10 mm of trocar, then, put the endopouch and excised cyst in this plastic bag. After putting away the upper part with the 10 mm of trocar, we make the cyst open in the pouch with the suction bar which is in the morcellator and 10 mm of serrated edge macromorcellator(SEMM) with the 10 mm of trocar at the position of entrance inside of pouch. Then, we removed the cystic wall and the solid material by using forceps, and finally, removed the endopouch. The remained ovary was observed, we made the blood spillage stop by using the bipolar coagulator, and sutured it by using 4-0 PDS. After that, we wash the inside of peritoneal cavity clearly with the warm physiologic saline, inject the about 200 cc of mixture of rheomacrodex-D and hydrocortisone into the peritoneal cavity for adhesion prevention, then we finished the operation.

3. Statistic analysis

We used ¥ö2 test for statistic analysis.

Results and discussion:-

1. Distribution of characteristics in cystic contents by patients' ages (Table 1)

As shown in Table 1, 81.8% of A-type cyst was appeared in the young women under age of 15 years old. Comparing 86.8% of B-type dermoid cyst in the women above age of 15 years old, A-type one is noteworthy more than B-type one in the young women under age of 15 years old statistically. ($P<0.01$)

2. Results of operation according to contents of cyst (Table 2)

The operation result was successful; that is, in case of A type dermoid cyst, we aspirated with the aspiration needle and sutured because there was a lot of fluid contents, dissection well without any rupture in the peritoneal cavity after the first aspirating from the 28 patients (87.5%) among the 32 patients, and aspirated and sutured immediately before the spillage in peritoneal cavity though there was a slight rupture during the dissection in 4 patients (12.5%), thus we operated successfully in the tumor excision operation without any spillage in peritoneal cavity in all 32 patients' cases of A type. The used physiologic saline for washing in the peritoneal cavity is below 2,000 cc. But in the B-type dermoid cyst, it was possible only for 23 patients (58.2%) among 39 patients to dissected the cyst without any rupture during the operation, and we aspirated and sutured in 13 patients (32.4%) as soon as the rupture is occurred before the spillage in peritoneal cavity. But in 3 patients (7.6%), because the rupture was large, the contents was leaked in peritoneal cavity and we used over 5,000 cc of physiologic saline for washing in the peritoneal cavity. Accordingly, the prevention rate of contents spillage in peritoneal cavity during operation of dermoid cyst is low in A-type one than B-type one statistically ($P<0.05$).
Thus, considering the Table 1, it is expected that the rate of contents spillage in peritoneal cavity during operation is quite low because there were much cases of A type dermoid cyst in the young women under of 15 years old compared to the age of over 15 years old.

Table 1. Distribution of patients according to content of dermoid cyst in age groups of < 15 years-old and ¡Ã 15-years-old.

Age	A type cys	B type cyst
< 15 yr	27/33(81.8%)	6/33(18.2%)
¡Ã 15 yr	5/38(13.2%)	33/38(86.8%)

* P < 0.01

Table 2. Results of operation according to contents of cyst.

Result	A type cyst	B type cyst
Rupture & spillage	0%(0/32)	7.6%(3/39)
Rupture, but no spillage	12.5%(4/32)	34.2%(13/39)
No rupture	87.5%(28/32)	58.2%(23/39)

* P < 0.0

3. Distribution of dermoid cyst by the size of cyst in the young women under age of 15 years old (Table 3)

The result that we compared the type of dermoid cyst in the group of its size is below 6 cm to over 6 cm shows that there are a lot of A-type dermoid cyst in the group of its size is over 6 cm than in the group of its size in below 6 cm statistically (P<0.01), That is, it is expected that it is possible to operate by minimizing the spillage in peritoneal cavity during the laparoscopic operation because large dermoid cysts in the young women has much fluid contents. And it is also expected that it will be easier to operate the A-type dermoid cyst because it will be possible to believe the decrease of dermoid cyst size after aspiration.

4. The spillage in peritoneal cavity of dermoid cystic contents during the laparoscopic operation in the young women under age of 15 years old (Table 4)

To prove the expected things by generalizing the above-mentioned results, we compared the spillage in peritoneal cavity of dermoid cystic contents in the group of below 6 cm to that in the group of over 6 cm of the young women under age of 15 years old during the laparoscopic operation. But we couldn't find the statistical differences between two groups, that is, it suggests that it is possible to execute the laparoscopic operation with any difficulties even though its size is over 6 cm in the young under age of 15 years old.

Table 3. Distribution of patients according to types of contents and sizes of cysts in younger than age 15 years-old.

Size of cyst	A type cyst	B type cyst
¡Ã 6 cm	15/15(100%)	0/15(0%)
< 6 cm	12/18(66.7%)	6/18(33.3%)

* P < 0.01

Table 4. Results of operation according to size of cyst in younger than age 15 years-old.

Results	¡Ã 6cm	< 6cm
Rupture & spillage	0/15(0%)	0/18(0%)
Rupture, but no spillage	2/15(13.3%)	3/18(16.7%)
No rupture	13/15(86.7%)	15/18(83.3%)

* P=0.361 (NS)

Table 5. Results of operation according to age.

Age	Rupture & spillage	Rupture, but no spillage	No rupture
< 15 yr	3% (1/33)	9% (3/33)	88% (29/33)
¡Ã 15 yr	12.6% (2/38)	34.4% (13/38)	53% (23/38)

* P<0.05

5. The spillage in peritoneal cavity of dermoid cystic contents during laparoscopic operation by age (Table 5)

Thus, we classify the patients who were taken the laparoscopic cystectomy into 2 groups of over age of 15 years old and under age of 15 years old. Then, we compared the rate of spillage in peritoneal cavity of dermoid cystic contents during the laparoscopic operation. Its result suggests that the rate of spillage in peritoneal cavity in the group of under age of 15 years old is meaningful lower than in the group of over age of 15 years old statistically. We suppose this result comes from that there are A-type dermoid cyst more in the group of age under 15 years old, thus, it is possible to execute the laparoscopic operation in the young women though it is a large one like adults, and suggests it may bring better results rather.

6. Discussion:-

The ovarian dermoid cyst is the most frequent ovarian cyst in young ages and occurred in in both sides is 10-15% and 75% among them is below 10 cm. It is divided into matured dermoid cyst and unmatured dermoid cyst histologically. The matured metastatic cyst is outer germ layer originality generally and may include the middle germ layer tissue or the inner germ layer tissue in part. Because almost the dermoid cysts are benign and asymptomatic. On the opinion by the characteristic ultrasonogram, the irregular solid material is shown at the cystic wall by the teeth, the fat-fluid shadow, the hair-fluid shadow, or the Rokistansky's protuberance in the cyst. But there is a malignancy in part (1-3%), the most frequent tissue type is a squamous cell carcinoma and its prognosis unsatisfactory after the therapy.

The complications by the dermoid cyst is various such as the adnexa torsion, the urgent chemical peritonitis by rupture, the adhesion, and the granulation reaction and its frequent one is the adnexa torsion (10%), It may cause the acute abdomen by the rupture or the infarction, then need the emergency operation. There are scholars who insist that some complications may be caused such as the granulation reaction because it is hard to remove the spillage in the peritoneum by the character of dermoid cystic contents (sebum, hair, and teeth) especially during the operation, but there are some scholars who insist that the compactions may not be caused.

Because of complications such as the adnexa torsion and the possibility of malignancy, the whole tissue including the cystic wall should be removed. Because it is frequented especially in the young women, the laparotomic cystectomy which can preserve the normal ovarian tissue at its maximum consists of main current, but recently by the development of laparoscopic operation which is good for beauty, the hospital day is short, and the complications is fewer after operation is increased. But, in this technique, the skilled doctor and assistant in the laparoscopic operation are necessary compared to the laparotomic cystectomy. If the size of cyst is large, the spillage rate of cystic contents is higher than the laparotomic cystectomy. Long hours are necessary in washing it and the quite-skilled technique is also necessary in removing it clearly. Because of the danger of spreading of malignant factors undiscovered in cyst in the peritoneal cavity before operation. it is fact that the laparoscopic operation is not attempted easily in the young women of their width is small in the peritoneal cavity and their size of cyst is large. Accordingly, when laparoscopic operation, a special technique preventing the spillage in peritoneal cavity of cyst contents is needed.

The method to lessen spillage in the peritoneum is to suggest the removal method using the trocar and the one through the vagina after executing the culdotomy using the opaque cyst. The method using the culdotomy has some advantages such that it is possible not to use the opaque cyst and the spillage rate is fewer than the existing laparoscopic operation. But it is complicate to change the laparoscopic operation to the vaginal operation, then to execute the laparoscopic

operation again. Thus, the operation removing the trocar part using the endopouch is performed.

Conclusion:-

Therefore, we observed that the rupture is frequently occurred during laparoscopic cystectomy with traditional method in our university. We cut the serosal wall with needle bovie a little bit, aspirated it with aspirator, and sutured the part in case of A-type cyst by the ultrasonogram and other image diagnosis before operation. Then, we succeed the operation without any rupture in 28 patients (87.5%) among 32 patients by dissecting the cyst from the normal ovarian tissues and also succeed in 4 patients (12.5%) by aspirating and suturing immediately though there is a slight rupture during the dissection. We succeed the dermoid cyst excision operation in all 32 examples without any spillage in peritoneal cavity and used the 2,000 cc of physiologic saline in washing the peritoneal cavity. As researched in this study, A-type cyst is major in the young women and A-type is also major even in the large size of cyst over 6 cm. So if the operation is executed with the advanced method to minimize the spillage in peritoneal cavity of contents, we suppose it is possible to excise the cyst by the laparoscopy by the lesser rupture rate of cyst and lessening the size of cyst suitably with aspiration of the contents though its size is large in the young women.

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