

Pregnancy Complications : A Surgical Case of Complex Disorders after Delivery by Cesarean Section

journal or publication title	熊本大学教育学部紀要 自然科学
volume	44
page range	95-102
year	1995-12-15
URL	http://hdl.handle.net/2298/2300

Pregnancy Complications : A Surgical Case of Complex Disorders after Delivery by Cesarean Section

Mitsuo SASAKI, Haruhiko MIYAYAMA, Akira ISHIHARA
Akitsu TSUNAWAKI*, Satoshi MIYAJIMA**

Received September 4, 1995

A surgical case with complex disorders in pregnancy complications was described. The patient, a 41-year-old primigravida with known multiple uterine myomas was delivered of a girl baby by Cesarean section on Dec. 27, 1994 at a private hospital. Two days after the delivery, she complained of epigastralgia and nausea followed by vomiting soon after. Postoperative ileus was suspected at this stage.

Ultrasonographic and roentgenographic examinations in Kumamoto City Hospital revealed the presence of multiple uterine myomas and a mechanical ileus caused by lower ileal stricture. A laparotomy performed on Jan. 12, 1995 at the City Hospital manifested complex disorders of the uterus and its neighboring organs including multiple uterine myomas, rupture of the sutured wound, intrauterine infection and fibrous adhesion among the pelvic organs. Adhesion between the uterine serosa and the lower ileum was the cause of the mechanical ileus. For this reason, part of the ileum including the adhesive focus was resected, and the severely diseased uterus was also removed by hysterectomy during this operation. The extension of the disease and the relations among these complex disorders are discussed from the viewpoint of pathogenesis, based on the results obtained from histopathological examinations of the surgical specimens.

Key Words : Pregnancy Complications, Pathology

Introduction

It is not a rare occasion that a pregnant woman with uterine leiomyomas comes to a successful delivery and uneventful puerperium. But, it is also a fact that some rate of the cases under myoma-combined pregnancy constitutes a risk group for complications. Recently, the authors experienced a case of 41-year-old female who had complex disorders successively after delivery by Cesarean section. This paper is concerned with the surgical findings at laparotomy performed sixteen days after the delivery, and with a diagnostic approach by pathological examinations.

Clinical Course

A 41-year-old primigravida with known multiple nodules of uterine myoma was delivered of a girl baby weighing 3150g at 37 weeks gestation by Cesarean section, at a private hospital on December 27, 1994. Two days after the delivery, the patient complained of epigastralgia and nausea on Dec. 29. Vomiting appeared subsequently. Urine amount decreased to 500ml a day. Since the patient's general condition had been gradually deteriorating thereafter, she was transferred to

* Kumamoto City Hospital, Obstetrics and Gynecology

** Kumamoto City Hospital, Obstetrics and Gynecology

Kumamoto City Hospital on Jan. 1, 1995 under a presumptive diagnosis of postoperative ileus.

On admission, the presence of multiple myoma nodules of the uterus was reconfirmed by ultrasonographic examination. Her general condition had improved considerably in a week after admission by IVH control of nutrition. Roentgenographic examination of her intestinal tract revealed a focal stricture at about 1 meter oral from the ileocecal valve. She had no fever, and blood pressure was within normal range throughout whole hospitalization period. But, urinalysis showed at times occult bleeding before and after the operation on Jan. 12. From the clinical findings described above, the patient's disorders were regarded as a status applicable to surgical treatment. The preoperative diagnosis was "multiple uterine myomas and a mechanical ileus due to stricture".

Main laboratory data during the hospitalization are shown in Table 1 and 2.

Surgical Findings

Laparotomy was performed on Jan. 12, 1995. The serosal surface of the uterus was observed to have been widely adhered to the urinary bladder, lower part of the ileum and other surrounding soft tissues (Sketched Figure). Adhesive part of the ileum seemed grossly to be the focus of Meckel's

Table 1. Laboratory Examination (Blood Biochemistry)

Date	Jan. 1	Jan. 9	Jan. 14	Jan. 17
Total Protein	5,8 g/dl(L)	6,4 (L)	4,8 (L)	6,0 (L)
Albumin	2,6 g/dl(L)	3,0 (L)	—	3,1 (L)
A/G	0,8 (L)	—	0,9 (L)	1,1 (L)
GOT	43 IU/l (H)	19	19	176 (H)
GPT	49 IU/l (H)	15	14	178 (H)
Alkaline Pase	—	239 mEq/l	—	575 (H)
LDH	456 IU/l(H)	648 (H)	307	450
CPK	34 IU/l	—	111	—
Total Cholesterol	—	—	138 mg/dl	—
Blood Sugar	94 mg/dl	88	—	102
Urea N	19,2 mg/dl	20,0	23,6 (H)	11,2
Na	139 mEq/l	139	140	—
K	3,2 mEq/l(L)	4,5	4,2	—
Cl	94 mEq/l (L)	104	103	—

* H indicates higher than normal value

** L indicates lower than normal value

Table 2. Laboratory Examination (Blood Picture)

Date	Jan. 1	Jan. 9	Jan.13	Jan. 17
Leucocyte	8400	7300	11000	4100
Erythrocyte	285x10 ⁴ (L)	311x10 ⁴ (L)	399x10 ⁴	319x10 ⁴ (L)
Hemoglobin	9,5 g/dl(L)	10,5 (L)	13,0	10,4 (L)
MCV	100,0 fl(H)	104,2 (H)	100,5 (H)	99,7 (H)
MCH	33,3 pg (H)	33,8 (H)	32,6	33,1 (H)
MCHC	33,3	32,4 (L)	32,4 (L)	33,2
Thrombocyte	43,1x10 ⁴ (H)	56,5x10 ⁴ (H)	40,4x10 ⁴ (H)	44,4x10 ⁴ (H)

* H indicates higher than normal value

** L indicates lower than normal value

diverticulum. The ileal tract was sharply bent at this point suggesting it to be the cause of mechanical ileus. Therefore, after releasing the adhesion, a limited length of the ileum including the adhesive part was resected at this operation, and then both cut ends were surgically anastomosed end-to-end. Although no findings of diffuse peritonitis were there on inspection of the peritoneal cavity, the sutured wound of the uterine surface which had been made after the Cesarean section was seen to be opened again suggesting a failure of the sutures, with some hematoma-like blood clot adhering to it. The operator surgeon recorded that a spatial communication between the uterine cavity and the serosal surface was recognizable through the lacerated wound. Upon confirming above status, abdominal hysterectomy was performed. The removed uterus of a child head size revealed a distorted figure of the uterus by bearing several myoma nodules of various sizes, the largest one of which measured about 10cm in diameter. The postoperative diagnosis was as follows. (1) multiple myomas of the uterus (2) Meckel's diverticulum (3) adhesion between the lower ileum and the pelvic organs (4) a mechanical ileus (5) rupture of the uterus due to failure of the sutures (6) suspicion of uterus sarcoma.

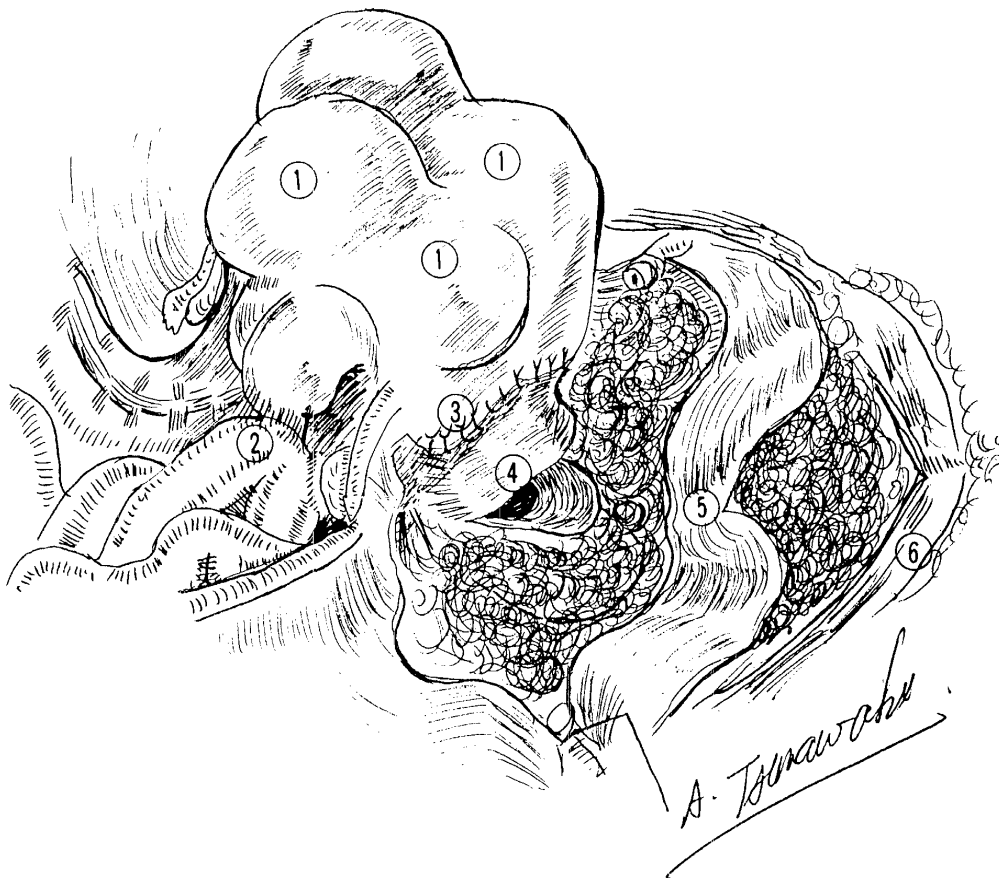
The patient was discharged from hospital on Jan. 24. She has been living uneventfully to date.

Histopathological Findings

Histology of the majority of myomas taken from various nodules exhibited prominent and diffuse hyaline degeneration in their parenchyma. Edematous or mucoid degeneration followed by loosening of the tissues could also be seen with occasional small foci of hemorrhage. But, as far as the tissues we examined were concerned, more severe changes such as necrosis or sarcomatous transformation were undetectable.

Tissues along the fissure of the wound sutured during the Cesarean section were severely inflamed with numerous neutrophils infiltration, hemorrhagic and fibrinous exudates intermingled (Fig. 1). Endometrium of the uterus was also diffusely inflamed, the glands of which were rather randomly distributed with frequent hemorrhage or inflammatory exudates in their glandular lumina (Figs. 2 & 3). Some of the epithelial cells of these endometrial glands appeared in still remaining Arias-Stella features in pregnancy with cytoplasmic vacuolization, nuclear atypism and irregular

Sketched Figure



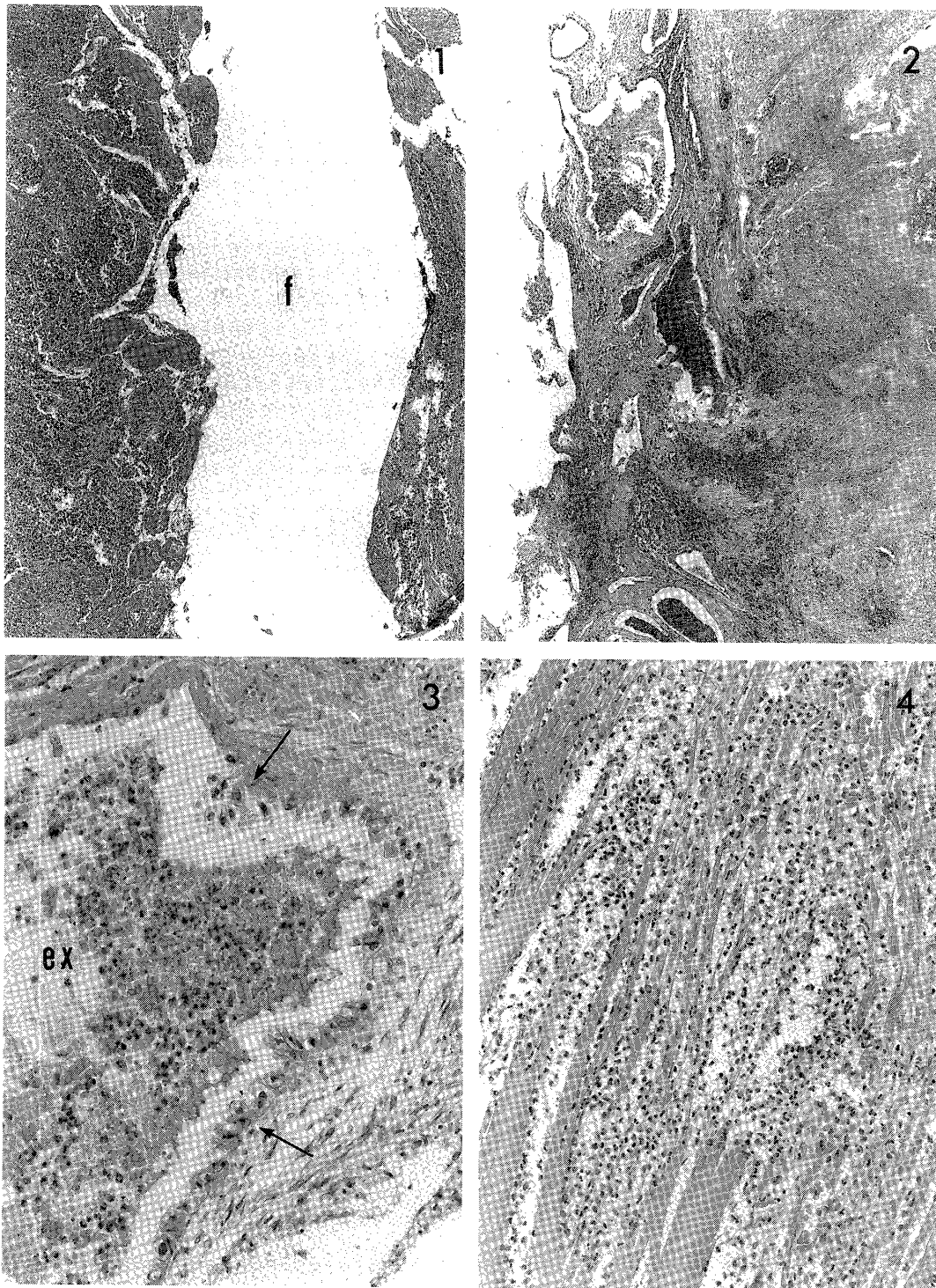
Gross appearance of the opened peritoneal cavity, sketched by Dr. A. Tsunawaki. Each numbering focus indicates (1) myoma nodules (2) adhesion between lower ileum and serosal surface of the uterus (3) sutured wound at Cesarean section (4) artificial cut made for hysterectomy at the present operation (5) parietal peritoneum (6) pelvic wall

cell-arrangement (Fig. 3). The purulent inflammation extended infiltratively into the myometrial tissues from the original sites of endometrium and wound fissures (Fig. 4).

Another unexpected finding on histological examinations of the uterus was the presence of placental rest. A small mass of chorionic villi remained deeply in the endometrium falling partly into a coagulation necrosis with resembling features to placental infarction (Fig. 5).

Microscopical examination of the lower ileum which was resected at operation because of its adhesion with the uterine serosa did not prove that the adhesive ileal wall was a true Meckel's diverticulum, nor was it perforated contrary to a clinical presumption at laparotomy. Because no aberrant tissues of pancreas or gastric mucosa were visible in the wall. Nonspecific catarrhal infiltration by lymphocytes and plasma cells was the only pathological change (Fig. 6).

Although the serosal surfaces of both ileum and uterus showed edematous thickening and



All the photomicrographs (Fig. 1 to Fig. 6) were taken from the histopathological sections of the surgical specimens obtained at operation. All the tissue sections were stained with hematoxylin and eosin.

Fig. 1: Low magnification photomicrograph of the fissure (f) of the uterine sutured wound. Both side-walls of the fissure were severely inflamed by inflammatory exudates. (mag. 10×4)

Fig. 2: Endometrium shows intense acute endometritis infiltrated by numerous inflammatory cells. Endometrial glands are damaged and rather randomly distributed. (mag. 10×4)

Fig. 3: Enlarged micrograph of an endometrial gland. The inflammatory exudates including many neutrophils and mucus (ex) can be seen in the dilated glandular lumen. The epithelial cells of the gland arrange in an irregular fashion, and the individual cells show cytoplasmic vacuolization and nuclear atypia exhibiting still remaining Arias-Stella phenomenon (arrows). (mag. 10×20)

Fig. 4: Extension of the purulent inflammation into myometra. Numerous neutrophils are infiltrating the myometrial tissues dividing or splitting the smooth muscle fibers. (mag. 10×10)

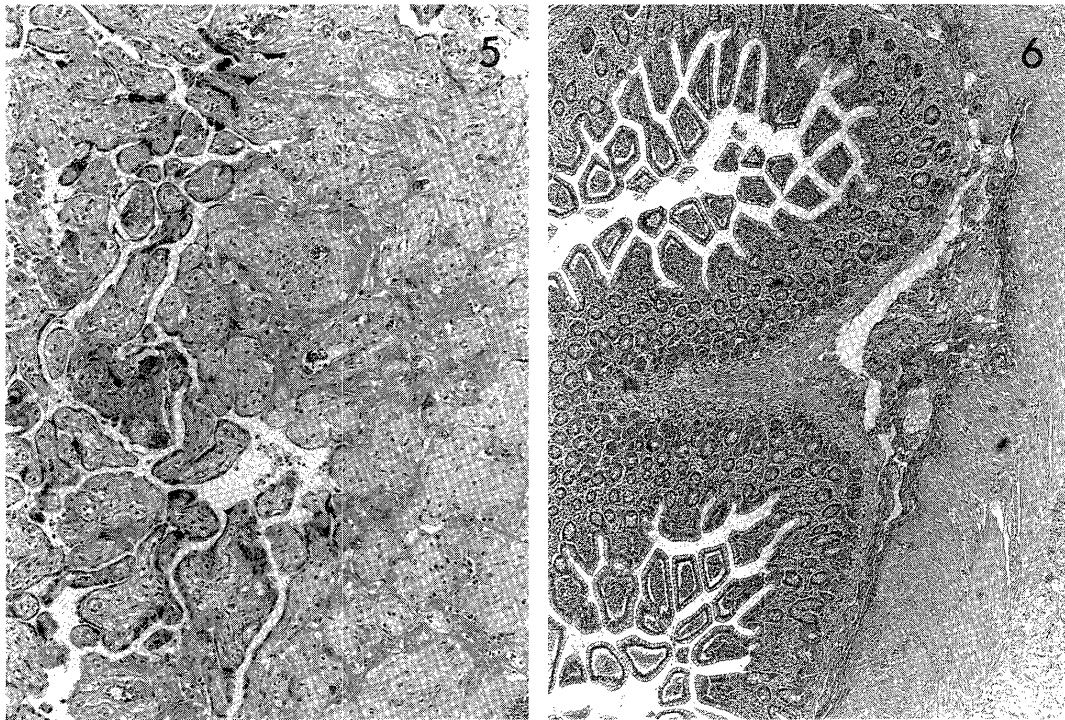


Fig. 5: Placental rest. In the right half of the micrograph, chorionic villi degenerate prominently in a necrobiotic fashion resembling placental infarction. (mag. 10×10)

Fig. 6: Lower ileal wall which adhered to the serosal surface of the uterus. Although this part was presumed to be the focus of Meckel's diverticulum, no aberrant tissues of pancreas or gastric mucosa could be detected on histology. (mag. 10×4)

slight cellular infiltration, no purulent inflammation as in the uterine endo- and myometra could be found. Therefore, the authors regarded above changes in serosa as an aseptic serositis. It seemed that the infective purulency was still confined within the uterus.

Discussion

Myoma-combined pregnancies are not rare occasions, as it is well known in the obstetrical field. Many pregnant women with uterine myomas can spend their whole gestational periods without any complications. But, it is also a fact that others experience some sorts of pregnancy complications during gestation or puerperium^{3,10)}. The patient's pregnancy presented here seemed, in spite of a case of multiple myoma-combined pregnancy, to have progressed smoothly at least

before delivery of the baby. However, a wide fibrous adhesion that appeared subsequently after the Cesarean section among uterus, urinary bladder, lower ileum and other soft tissues would have been the first complication of this pregnancy. Meckel's diverticulum that was regarded at laparotomy as a focus of utero-ileal adhesion accompanying its perforation was not the fact in this case. Some of the people with Meckel's diverticulum experience its complications such as ileus, hemorrhage, perforation and others^{9,11}. Literature describes their frequencies as 20 to 30%⁹ or 11 to 25%¹¹ of the diverticulum population. In the present case, the patient's mechanical ileus was exactly induced by bending of the ileal canal at the utero-ileal adhesive focus. However, on histological examinations of the resected piece of ileum, the authors could not find aberrant tissues of pancreas or gastric mucosa that prove histologically the focal wall-expansion to be true diverticulum, nor could we find severe inflammation or ulcer suggestive of its perforation.

The second pregnancy complication was a rupture of the uterine wall at the incisional wound in the Cesarean section accompanying severe infection. A suppurative inflammation extended around the infected fissure, forming a pyometra-like condition. Pyometra and its subsequent disorders such as rupture and panperitonitis have been reported frequently in literature^{2,7,8,10,12,14,15}. Although there could be various causes of pyometra, the most common cause is an occlusive mechanism of the cervix by malignant disease, mainly in postmenopausal women. Muram et al². described that pyometra in premenopausal females is rare, and the cause is traumatic damage or a congenital anomaly.

In our own case, two other abnormal conditions were there that were able to be associated with the rupture and infection i. e. the presence of multiple myomas and the placental rest. It is a common phenomenon that uterine myomas frequently undergo secondary degenerations especially during pregnancy. Prominent and wider hyalinization were observed in most leiomyoma nodules we examined, with occasional small foci of hemorrhage. But, more severe changes as necrosis or malignant transformation were not detectable. In literature, cases in which the necrosis of leiomyomas basically benign in nature developed to uterine perforation⁵ or caused DIC at the six day puerperium⁶ have been reported. There can be seen another case report of pregnancy in complication with true uterine sarcoma that resulted in a successful delivery after the tumor enucleation⁴.

It is also commonly accepted that uterine myomas increase in size during pregnancy, but decrease again after the pregnancy is terminated¹. Rosati et al¹³. postulated that myomas with volumes greater than 200cm³ are the risk factors of pregnancy complications. Winer-Muram et al³. described a high rate incidence of complications in cases with close locations or in contact between myoma and placenta. But, in our present case, it would have been impossible to enucleate main nodules at early gestation, because of a case of multiple myomas.

Placental rest deeply situated in the endometrial wall made us presume that separation of the placenta at the Cesarean section had been incomplete because of unevenness of the endometrial surface resulted from the presence of myoma nodules.

From clinical and pathological findings discussed here, the causes and the results of complex disorders including multiple myomas, placental rest, rupture of the incisional wound, intramural infection and fibrous adhesion among pelvic organs seemed to have been complicatedly associated to one another. In addition, one of the reasons that made the precise diagnosis difficult at the preoperative stage would be masked or insufficient clinical symptoms in contrast to a variety of disorders found later surgically and pathologically. Retrospectively speaking, no genital bleeding appeared in spite of the presence of placental rest, no fever reacted against the infection, and no

leucocytosis was counted except on Jan. 13, whereas some significantly abnormal data could be seen on the laboratory examinations (Table 1 & 2). The present case was undoubtedly one of the complex and troublesome pregnancy complications on diagnosis and clinical treatment. However, the authors have an impression that there still remains something unsolved in this case.

References

- 1) NOVAK E. R., WOODRUFF J. D. : Gynecologic and Obstetric Pathology, 8th Edition, Saunders Co., Chapter 11 : Myoma and Other Benign Tumors of the Uterus, 260-279.
- 2) MURAM D., DROUIN P. et al. : Pyometra. *Canad. Med. Assoc. J.* Vol. 125, No. 6, 589-592, 1981.
- 3) WINER-MURAM H. T., MURAM D., Gillieson M. S. : Uterine myomas in pregnancy. *J. de L'Association Canadienne des Radiologistes*, Vol. 35, 168-170, 1984.
- 4) TAKAHASHI K., MOROHOSHI T. et al. : A case of myxoid leiomyosarcoma of the uterus associated with pregnancy. *The Journal of the Showa Medical Association*, Vol. 48, 713-718, 1988. (Jpn. Edition)
- 5) MAKER A. P., MEULYZER P. R. et al. : A case report of unusual complication of myomatous uterus in pregnancy : spontaneous perforation of myoma after red degeneration. *European J. of Obstetr. & Gynecol. and Reproductive Biol.*, Vol. 31, 189-193, 1988. (Jpn. Edition)
- 6) BOSNER H., PAVESIC D. et al. : A case of acute renal failure following necrosis of uterine myoma in the early puerperium. *Jugosl gynecol perinatal*, Vol. 29, 55-58, 1989.
- 7) TADAOKA N., SASAKI R. et al. : A case of Panperitonitis due to spontaneous rupture of pyometra. *Gastroenterological Surgery*, Vol. 13, 1433-1436, 1990. (Jpn. Edition)
- 8) TAKEUCHI S., TORII S. et al. : A case of acute abdomen by perforation of pyometra. *Surgical Therapy*, Vol. 63, No. 1, 116-118, 1990. (Jpn. Edition)
- 9) OHTA T., KOJIMA K. et al. : Meckel's diverticulum — A review of 12 pediatric patients. *Progress in acute abdominal medicine*, Vol. 10, No. 5, 843-846, 1990. (Jpn. Edition)
- 10) SAWASAKI M., OHTAKA K. et al. : A case of uterine myoma complicated with infection after premature delivery. *Tokyo Journal of Obstetrics and Gynecology*, Vol. 40, No. 2, 219-221, 1991. (Jpn. Edition)
- 11) NAKAJIMA T., NAGAHAMA A., WATANABE S. : A case of Meckel's diverticulum accompanied by panperitonitis. *The Journal of the Japanese Practical Surgeon Society*, Vol. 52, No. 8, 1838-1841, 1991. (Jpn. Edition)
- 12) MISE K., MORIMOTO S. : Two Cases of panperitonitis by perforation of pyometra. *Medical Journal of Tokushima City Hospital*, Vol. 6, 79-84, 1992. (Jpn. Edition)
- 13) ROSATI P., EXACOSTOS C., MANCUSO S. : Longitudinal evaluation of uterine myoma growth during pregnancy. A sonographic study. *J Ultrasound Med*, Vol. 11, 511-515, 1992.
- 14) TAKATA T., SAKAI T. et al. : Perforation of pyometra presenting as a panperitonitis ; two case reports. *Journal of Hyogo Association of Surgeons*, No. 116, 71-73, 1993. (Jpn. Edition)
- 15) TAKAHASHI T., KASAOKA C. et al. : A case of perforated pyometra associated with diffuse peritonitis. *The Journal of the Japanese Practical Surgeon Society*, Vol. 54, No. 1, 912-914, 1993. (Jpn. Edition)