

GENERAL STAFF MEETING
UNIVERSITY HOSPITALS
UNIVERSITY OF MINNESOTA

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I. ANNOUNCEMENTS

1. Seminar in Medicine: or Clinical Therapeutic Conference, on Wednesday, 4:45 P.M. (sharp), weekly, Eustis, Room 3. Yesterday Drs. Litzenberg, White and McKinley discussed "Indications other than Obstetrical and Gynecological for premature termination of Pregnancy and Sterilization" (I). Neat announcements sent in advance giving subject, speaker and date have appeared this fall. Because of general interest of subjects and excellence of speakers, all should make effort to attend. Internes, graduate students sometimes complain of "too little teaching". Not so at Minnesota. All should learn early to budget time to combine work and opportunities for instruction.

2. Emergency Service:

Through special arrangement with Buildings and Grounds Department injured "U" employes are sent to Receiving Service in Out-patient Department for treatment. There is apparently a misunderstanding in regard to this arrangement on the part of the Receiving Service. This is a splendid opportunity for internes to get some emergency experience. Be sure patients are cared for at once. Use both in and out services as consultants. Many physicians doing office practice have to treat emergencies - this is your opportunity to learn, our duty to care for these people as "private" emergency patients.

3. The Middle-Rate Plan for Hospital Patients; a year's experiment in Keokuk, Iowa by Mary Ross. Published by Julius Rosenwald Fund, Chicago, Illinois, 1931. Note: the following abstract of a new experiment in "social medicine" is of particular interest at the present time of intensive study of "The Cost of Medical Care." It was sponsored by "a younger physician" of the new school of hospital trained graduates (required internships) and rejected by the physicians of the older school. As the economic depression continues, we will more and more feel the pinch of lowered

tax returns, hence we should interest ourselves in these problems.

Place: Keokuk, Iowa, 15,000 residents. Trade territory 40,000 to 80,000 (including city). Physicians 25, including adjacent territory 50. Only 2 are less than 40, only 6 have taken degrees in past 20 years. Community prides itself on being a medical center and once had a medical college from which more than half of local physicians graduated.

Industries: Power dam, corn products factory, etc. and farming. Average industrial wage \$25-\$30 a week when employed. Has felt effects of droughts, farm and industrial depression.

Physicians' fees: 6 surgeons, 1 internist, 1 anaesthetist, 1 proctologist, 3 eye, ear, nose and throat, 1 obstetrician and pediatrician (1 member College of Surgeons, 1 formal post-graduate training). Office \$1, House \$2. Operations \$125 up. Obstetrics \$25 to \$150. All physicians appear prosperous and are in good community standing.

Hospitals: 1 Catholic (125 beds), 1 Protestant (65 beds). Both built (in part) and partially maintained (Protestant) by community. Drives for both up to and including Feb. 1930. Occupancy (1930) 52% (P), 77% (C). Rates vary from \$14 to \$45 a week. Many private rooms vacant.

Plan: For persons unable to pay regular fees and not indigent. Used rooms (2 bed). Social worker - admitting officer for committee of physicians and hospital superintendents. One fee with detailed study of eligibility and method of payment. Total bill to be paid to hospital (which paid physician and others their share).

Fees: Rates about half of ordinary private practice; e.g., Average surgical case (2 weeks stay) \$112.50 - \$78 to physicians. Tonsillectomy (1 day) - \$40 - to physicians \$25; obstetrical case (10 days) \$45 - to physicians \$30;

Medical cases \$1 a day. X-ray (half), surgical appliances (cost). Rosenwald fund to supply deficit (2/3 of hospital) (1/3 of physicians) and salary of admitting officer (half-time position).

Result: 164 cases cared for under plan. Patients were "better pay" than ordinary hospital group (i.e., meeting payments). Total \$8,549.55 - 52% paid up. Fund paid \$2,152.52 for deficits. 17 of 22 physicians used it. Publicity was good and idea was enthusiastically supported by community; i.e., hospitals, chamber of commerce, donors to hospitals, etc.

Economic Survey: Average income of group was \$21.95 weekly (which was later found to be too high). Average number in family 4. Average obligation per family \$54.89 - some had more than one obligation. Previous survey (Akron) showed average income of workers \$1,441.96 a year, \$41.60 allowed for illness per family per year, nothing for savings. At Keokuk - \$1140.40 (61% had incomes below average).

Note: Case reports indicate many were accepted because they wanted to pay - who would be sent to tax supported institutions elsewhere.

Discontinued: by vote of hospitals staffs after one year's trial. Apparent reason: opposition by elderly surgeons, others: state medicine, unnecessary, unfair, double standard; propaganda for small group of physicians, unethical, interfered with physicians' rights, many could have paid more, etc. The public said in substance, "We have given \$270,000 to these hospitals, in past two years, average \$18 for each man, woman and child in this community. Capital investment of hospitals is \$600,000, a workshop for each physician averaging \$27,000 apiece, or \$7,400 if the surrounding territory is included. The hospitals favored the plan, the patients, donors, community organizations liked it, the doctors threw it out. Two unusual questions are raised in the summary: "Who owns the hospitals?" "Is the physician's charge to be determined solely by himself, limited on the one

hand by his private generosity, on the other by his willingness to take as much as the patient can pay him at any sacrifice. "

4. Mantoux Tests: are to be done on in and out-patients for purpose of ascertaining number of positives and negatives. Tests will be applied by technical staff, read by representatives of those interested in survey.

5. Last Week: Official attendance 65. Discussions by Rigler, Ulrich, Wangenstein. Remarks: X-ray diagnosis of carcinoma of pancreas depends on size and location of mass. Other deformities may be seen. Also of negative value by excluding intrinsic tumors of adjacent structures. Diagnostic error of emphasis on stone instead of tumor might have been avoided if absence of fever (sepsis) was noted. Uncommon in tumor, common in stone. It is to be noted that the bleeding and clotting time determinations and calcium again failed to be of value. There is little doubt that the time factor is more important in estimating operative risk. Does it represent liver injury (source of fibrinogen?). Close cooperation should exist between services in exploring jaundiced patients early. Not less than 6 weeks, probably 3 weeks. Tumor of ampulla (palpable) should be considered in differential diagnosis. Carcinoma of gall bladder often starts as colic. May be considered neuros because of continuation of complaints. Jaundice may not develop early. It seems that we should not emphasize gall stones as a pre-cancerous lesion in absence of real knowledge as to how often it occurs.

II. CASE REPORT

TRANSVERSE PRESENTATION: RUPTURE OF UTERUS. Path. Pearson.

The case is that of a middle aged female, age 42, admitted to the University Hospital at 9:30 A.M. on 5-20-31, and died at 11:20 A.M. the same day.

Transverse:

5-18-31 - At 6:00 P.M. began to have labor pains, and a physician was called who examined her and stated that the fetus was in the transverse position. The physician turned the fetus and then left.

Rupture of Membranes:

5-19-31 - Physician saw patient again. She had no pains at this time. At 6:00 P.M. the bag of water ruptured.

Arm presented

5-20-31 - At 4:30 A.M. the physician was again called. He noted that left arm of fetus protruded, and he tried to deliver the baby at this time, and worked about one-half hour with no results, so he advised her to be sent to the University Hospitals. At 9:30 A.M. the same day, she was admitted to this hospital.

Examination

Examination at this time showed a very hard uterus in tetanic contraction. Head was palpated on left side over brim of pelvis, and one hand and arm was presenting. Pulse at this time was 150. Patient was in very poor condition.

Delivery

Immediately placed on delivery table and ether given. 10:00 A.M., a decapitation was done. 10:12 A.M., a female child delivered. Condition of patient very poor. Pulse was very rapid and thready. Skin cold and clammy. 10:14 A.M., placenta was expressed. 1 cc. of ergot and 1 cc. of pituitrin given.

Shock

Blood loss estimated at 800 cc. Given 1500 cc. of 10% glucose by veins at this time, and placed in a shock position with legs bandaged tightly. Morphine sulphate, gr. 1/4, and adrenalin, 1 cc., given. Condition of patient was very poor. Artificial respiration begun. At 10:45 1 cc. of pituitrin and 1 cc. of ergot given. At 11:10, 1 cc. of adrenalin was given intravenously. Blood transfusion begun, about 50 cc. given. 11:20 A.M. patient died.

Pregnancy - abnormal - Sc.L.P.

Parturition - abnormal

External Version, attempted (outside)

Premature Rupture of membranes
Tetanic contraction of uterus with
bandl's ring formation
Transverse presentation with
impaction of shoulder
Prolapse of umbilical cord
Fetus dead in Utero
Decapitation of Fetus
Stillborn

Puerperium - abnormal

Post-partum hemorrhage
Immediate
Shock
Transfusion of blood
Death
Rupture of Uterus

Autopsy

Body is that of a fairly well developed, well nourished middle aged female, measuring 162 cm. in length, weighing approximately 150 lbs. There is no rigor present, no hypostasis, no edema, cyanosis, or jaundice. Pupils measure 4 mm. each and are equal and regular.

When the Peritoneal Cavity was opened, it was filled with recent blood, about 1500 cc. The Appendix was subcecal and free.

The Pleural Cavities contained no fluid. On the left side there was a very dense fibrous adhesion to the lower lobe.

The Heart weighed 300 grams, and was normal. There was no sclerosis. The valves were normal. The Root of Aorta showed no sclerosis,

The Lungs: Left weighed 180 grams; Right 220 grams, and showed a moderate amount of anthracosis; otherwise they were normal.

Spleen weighed 225 grams, was soft in consistence.

Liver weighed 1900 grams, and showed a slight cloudy swelling.

Gallbladder was thickened, fibrotic, and was the seat of a chronic cholecystitis, and there were several pigment stones.

Gastrointestinal Tract was normal in its entirety. Pancreas was normal.

Adrenals were normal. The Left Kidney weighed 160 grams, the Right 250 grams. The kidneys and ureters were normal. Kidneys showed a slight amount of cloudy

swelling. The bladder showed on its surface a bullous edema, especially near the trigone, and there was an area near the trigone which showed a hemorrhagic cystitis (slight).

Organs of the Head and Neck were not examined.

The Uterus was very large and firm, weighing 1500 grams. It was about 20 x 15 cm. There was a perforation in lower uterine segment on right side (12 cm.). On left side, similarly situated, there was an area suggesting a hematoma but no perforation. Both the broad ligaments were infiltrated with blood. There was a hematoma present in between the layers of the mesentery of the cecum and ascending colon, reaching up to the region of the kidney on the right side. Its appearance was suggestive of hemorrhage of some hours standing. The interior of the uterus was free and clean, no fragments of placenta left.

- DIAGNOSIS: (1) Transverse presentation (clinical)
- (2) Rupture of the uterus
 - (3) Hemoperitoneum
 - (4) Shock (clinical)
 - (5) Post-partum uterus
 - (6) Dissecting hematoma of the right retroperitoneal space and mesentery of the ascending colon
 - (7) Puncture wounds in the antecubital spaces
 - (8) Delivery with decapitation of the fetus
 - (9) Cystitis with bullous edema of the bladder
 - (10) Chronic cholecystitis and cholelithiasis

Note: Completeness of first sheet of chart - all diagnosis indexed like chapters in a book. And this is a habit with Dr. Litzenberg's service - here and at the General.

III. CASE REPORT:

TRANSVERSE PRESENTATION, INTERNAL VERSION, BREECH EXTRACTION, RUPTURE OF UTERUS, PERITONITIS.

Path. Henrikson.

The case is that of an adult white female, 22 years of age, admitted to the University Hospitals 4-15-31 and died

5-3-31 (19 days).

Past History

1922 - Began menstruating. Had lump in throat (goiter?) which went away within a year.

1927 - Struck on right knee. Leg "dead" for about 6 months. Treated with heat and electricity with perfect recovery.

1929 - Took medications for trouble with ovaries with relief.

3-?-30 Scarlet fever with dysuria. Passed only small amount of urine at a time.

7-15-30 Married.

Pregnancy

7-18-30 Last menstrual period. First trimester - morning nausea and vomiting; some headaches. Second trimester - slight nausea and vomiting, occasional headaches, scanty urine at times. Told that kidney trouble could not be cured until after pregnancy. Pimples on genitalia kept her from sleeping. Third trimester - occasional slight headaches, scanty urine for a short time only.

Fall-Labor

4-14-31 - 10 A.M. - Stumbled when carrying milk pail and rolled over several times. Felt life immediately after but in a different place than before so she thought baby had changed position. Felt nervous. 2 P.M. - Began having pains, becoming more and more severe. 9 P.M. - Physician called. 12 midnight - Ruptured membranes artificially because of slow progress. Then because of abnormal presentation with a prolapsed arm she was advised to enter the University Hospitals.

Hospital

4-15-31 4:30 A.M. - Entered University Hospitals. Tongue slightly coated; tonsils slightly enlarged; thyroid nodular and enlarged, more to right. Lungs - normal, slight tenderness in lower chest. Heart - normal. Abdomen - size suggests full term pregnancy; back to right and anterior; small parts to left; head not definitely palpable but mass palpable over symphysis to left, maybe the head. Fetal heart tones in right lower quadrant, 190 to 200. Rectal - an extremity (apparently arm with elbow presenting) occupies the pelvic canal. Cervix - dilated 5 to 6 cm. Pelvic floor con-

petent. Measurements: Interspinous 25 cm. intercrystal 27.5 cm., intertrochanteric 31 cm., and external conjugate 17 cm. Diagnoses: 1. Pregnancy at term in active labor. 2. Scapula, left anterior.

Vaginal examination

5:45 A.M. - vaginal examination - under deep ether anaesthesia - shoulder deeply prolapsed into vagina, deeply engaged and immovable. Right arm down, well flexed but hand palpable. Baby could not be pushed up on attempt. Chief called. Hand now prolapsed through vagina. Fetal heart tones not discernible. Cervix now dilated.

Version-extraction

7:45 A.M. - Version and extraction of a dead baby. Cervix drawn down and laceration on left side repaired with two interrupted chromic catgut sutures. Placenta did not separate.

Shock

Blood pressure 8-/60, patient cyanotic and restless. 9:30 A.M. - 100 cc. of 10% glucose, intravenously. 9:45 A.M. - caffeine sodium benzoate gr. viiss (H). Blood pressure 68/35. 10 A.M. - 550 cc. citrated blood by transfusion. 10:20 A.M. Morphine sulphate gr. 1/4. Improved. Blood pressure 100/70. No bleeding. 11 A.M. - Adrenalin 1 cc. (H).

Placenta delivered

2:35 P.M. Placenta expressed manually after sterile vaginal examination. 12 Noon - Abdomen becoming distended. 8 P.M. - Catheterized, 150 cc. urine. 8:15 P.M. - Codeine gr. ss and aspirin gr. x. 8:40 P.M. - Morphine sulphate gr. 1/4 (H).

Ileus

4-16-31 - Marked distension. Difficult breathing. Some relief from pituitrin and enema. Temperature 99.6; pulse 110.

Surgical consultation: Distension largely colonic. Advise gastric lavage and 20 cc. 20% saline, intravenously. 8:30 P.M. - 500 cc. gastric retention, much improved after lavage and eserine and saline. Temperature up to 101.4. 1000 cc. 10% glucose in normal saline, intravenously. X-ray - gas in colon and some in

small bowel. Findings consistent with paralytic ileus. Laboratory - hemoglobin 65%, wbc's 6,300. Urine - sugar 2+, albumen 1+, wbc's 2 - 3 per high power field, and rbc's 1 - 2 per high power field.

More consultation

4-17-31 - Eserine, pituitrin, enemata, and rectal tube for distension, dyspnea, and abdominal pain. Catheterization every 6 hours with boric irrigations and 1 oz. of silver nitrate, (1-2000 instillations). Medical consultation: No pneumonia. Massive collapse of right lung must be considered. Advise two large blood transfusions, oxygen tent, and attempts to get rid of gas in intestines. Blood pressure 125. Pulse 110. Seems slightly improved. Urine - no wbc's, 5-6 rbc's per high power field. X-ray of chest - no evidence of stelectasis. Much gas in abdomen pressing diaphragm upwards.

Pneumonia

4-18-31 - Better night. Good results from enemata. Increased vocal fremitus and rales. X-ray of chest - small round dense shadow at left base suggestive of beginning consolidation. Temperature 103.6; pulse 136. Rbc's 1,920,000. Still distended, dyspneic, and uncomfortable. Eserine, pituitrin, enemata, and rectal tube still necessary frequently. Hot turpentine stupes begun. Liquid stools occasionally with much flatus. Blood culture reported sterile.

Better?

4-19-31 - Gastric lavage, 500 cc. retention. 300 cc. citrated blood by transfusion plus 750 cc. 8% glucose in saline. Veins thrombosed and difficult to find. Patient stronger. Abdomen softer. Can turn about in bed without pain. 6:30 P.M. - vomiting. 500 cc. by gastric lavage. Nothing by mouth. 1500 cc. of 3% glucose in saline by hypodermoclysis.

Stationery

4-20-31 - Condition about same. Considerable amount of dark, foul-smelling discharge from vagina. Ergot drams i every 2 hours for four doses. Gastric retention of 200 cc. 2000 cc. of 5% glucose in saline by hypodermoclysis.

Somewhat distended. Some relief from pituitrin 1/2 cc. twice and eserine gr. 1/50 once. Temperature 101.6 to 99.4. Hemoglobin 58%, rbc's 2,060,000, wbc's 7,700. Urine contains rbc's and wbc's 1 to 4 per high power field.

4-21-31 - Feels better. Blood pressure normal. Temperature 99 to 100.4. Ergot drams i every 2 hours for 5 doses. Dil. Hcl. M. xx in orange juice t.i.d. and p.r.n. Belches. Peppermint water ordered.

4-22-31 - Still having gastric lavage and catheterizations. Complains of abdominal distress. Belching less. Diarrhoea less. Hb. 53%, rbc's 2,320,000, wbc's 5,400, P 84, and L 16. Urine - 20 to 30 wbc's, occasional red, trace of albumen.

4-23-31 - Condition and treatment about same. Slight brownish discharge from vagina.

Worse

4-24-31 - Respirations and pulse rapid. Face pale. Abdominal distended. Temperature 100 to 101; pulse 110 to 130.

4-25-31 - No lochia. Much flatus. Abdomen distended. Temperature 100.2 to 101.8; pulse 120.

4-26-31 - Tired and complains of pain in pelvis when voiding. No lochia. Quite distended. Abdominal examination - dullness half way to umbilicus and laterally to flanks. Catheterized, 100 cc. urine. Edema above symphysis. Rectal - cervix high. Broad ligament thick. Uterus not felt, too high.

X-ray

4-27-31 - Distension about same. X-ray shows dilatation of small as well as large bowel. Suggests paralytic ileus. Profuse flow of thin chocolate-colored lochia. Magnesium sulphate oz. ii. Cod liver oil oz. ii and orange juice ordered.

4-28-31 - Gastric lavage, 250 cc. retention. 750 Cc. blood transfusion. Wassermann negative. Discharge from vagina remains same. Glycerine suppositories b.i.d. Pituitrin still being given 1 or 2 times daily. Turpentine stupes also still continued. Face flushed. Weak. Greenish watery discharge from vagina. Refuses nourishment. Temperature 101.4 to 102.8.

4-29-31 - Lesions on buttocks improving. Condition about same. Temperature down to 100; pulse down to 96.

4-30-31 - Ergot drams i every 4 hours for 4 doses. No special complaints. Breasts negative. Noble's enema with good results. Temperature 102 to 102.6; Pulse 120. Hb. 62%, wbc's 9,250, rbc's 2,680,000.

Worse

5-1-31 - Patient looks worse. Rectal - no palpable cellulitis; uterus subinvolved. Surgical consultation regarding euterostomy to be asked for. Surgical consultation: Distension, tenderness, colics--one lasting 20 minutes and at height of which gurgling noises heard. Rectal - hemorrhoids, tender. Induration all around rectum high up. Impression: mechanical obstruction of sigmoid flexure or pelvic colon due to pelvic cellulitis. Advise: Sigmoidostomy to allow escape of fecae and gas to break vicious circle of cellulitis and distension.

Operation

Dark watery discharge in large amounts. X-ray - gas in stomach, small and large bowel suggestive of paralytic ileus. Mass in pelvis may be enlarged uterus. Temperature 101.6 to 103.8; pulse 120 to 148. 2:30 P.M. - Operation - under spinal anaesthesia a left oblique inguinal incision was made opening the rectus sheath. When the peritoneum was cut down upon, it was found extremely thick, difficult to obtain a line of cleavage between the intestines and the rectus sheath. The peritoneum was very much thickened. The peritoneal cavity was opened. Free pus was found in the pelvis. There were numerous adhesions in the lower abdomen, and the coils of intestine that could be seen by retracting the inner sheath of the wound appeared fairly clean. The lower abdomen contained considerable fluid which extended fairly high in the abdomen and there seemed to be a fairly dense pelvic mass. The impression of mechanical obstruction must therefore be altered to read mechanical obstruction plus intestinal obstruction as occasioned by pelvic peritonitis. It is fairly possible that the whole thing is on a

mechanical basis, but with the finding of pus certainly one must have in mind that obstruction is partially paralytic in character. Operative procedure: Sigmoid flexure exposed with some difficulty. Sigmoidostomy performed as it was believed that the mass below furnished the mechanical obstruction to the continuity of the intestinal canal. Although the small intestine was distended, it was the impression that the sigmoidostomy alone would be adequate. The sigmoid flexure was brought into the wound and anchored there. Vaseline gauze packs used to isolate it. One silk suture was put at the very apex of the protruding bowel to guide the operator in opening the bowel later. Usual closure was used.

8-15 P.M. - Exposed loop opened with cautery and #18 catheter inserted and connected with bottle. Small amount of gas and liquid content escaped.

Poor drainage

5-2-31 - No drainage from tube over night. Very little obtainable by manipulating catheter. Patient's condition critical. Hands cold. Patient delirious. Pulse thready. 475 cc. by gastric lavage. Rectal tube and pituitrin give no relief. Moans great deal. Nervous and fidgety. Vomits and belches. Screams. Says she saw and talked to ghost. Thinks it is hovering over her. Frightened. Shakes head violently. Says she is going crazy. Marked pallor. Caffeine sodium benzoate. Perspires profusely. Temperature 104. Pulse 100-150.

Exitus

5-3-31 - 5:30 A.M. - Comatose. Respirations labored. Pulse imperceptible. No drainage. Tube removed and found plugged with feces. New tube inserted. 10:30 A.M. - Pulse imperceptible. Caffeine sodium benzoate of no avail. 1:00 P.M. - gasping. 2:10 P.M. exitus.

Pregnancy - abnormal - Sc.L.A.

Parturition - Abnormal - S.D.A.

Premature Rupture of Membranes
Prolapse of am
Internal combined version
Breech extraction
Laceration of Cervix, Uteri,
recent, repaired

Retained placenta
Manual removal of placenta
Stillborn
Rupture of uterus
Shock, surgical
Transfusion of blood

Puerperium - abnormal

Paralytic ileus
Peritonitis, acute, generalized
Sigmoidostomy
Death

Autopsy

The body is that of a white adult female, 160 cm. long, weighing approximately 110#, well developed and well nourished. Rigor is present. Hypostasis is purplish and posterior. There is no edema, cyanosis nor jaundice. The pupils are each 4 mm. in diameter. Abdomen is distended. In left lower quadrant, there is an incision 15 cm. long, in the middle of which there is a #10 catheter. There is a small incision and puncture wounds in the antecubital spaces.

The fat over the anterior abdominal wall is 1.5 cm. thick. The right diaphragm is at the 4th rib and left at the 4th interspace. The Appendix is bound down by adhesions in right lower quadrant covered with an exudate. The omentum is spread over the coils of the intestines and is a black-green color. A large grapefruit-size, well walled-off abscess is present above the symphysis in the peritoneal cavity.

The Left Pleural Cavity contains about 150 cc. of light, bloody fluid. The Pericardial Sac contains about 25 cc. of light, straw-colored fluid.

The Heart weighs 300 Gm. The foramen ovale is open to a diameter of 3 mm. The valves are normal. The Root of the Aorta is normal.

The Left Lung weighs 500 Gm., the Right 450 Gm. The left lower lobe is a deep purple-red and is fairly firm. However, no pus is expressible.

The Spleen weighs 200 Gm. and is firm, brown-red on cross section.

The Liver weighs 1750 Gm. and is light yellowish-brown in color. The cut surfaces bulge slightly.

The Gall-bladder is distended with a greenish fluid which passes down through the bile duct on pressure over the fundus. Numerous adhesions bind the colon to the gall-bladder wall.

The Gastro-Intestinal Tract is markedly distended throughout and adherent by a fibrinous exudate. The adhesions are easily separated except about the abscess above the symphysis where the wall is markedly thickened. A small lemon-size abscess is present in the right gutter. On the left side, the vaseline gauzed pack extends into the peritoneal cavity along the loops of the sigmoid into which the catheter has been passed. There are no signs of leakage around the sigmoidostomy wound.

The Pancreas and Adrenals are normal.

The Left Kidney weighs 175 Gm., the Right 180 Gm. The cut surfaces bulge slightly and are gray-pink in color.

The Bladder shows a congested muccas.

The abdominal Aorta is normal.

The Uterus is about $2\frac{1}{2}$ times the normal size and is bound down to the posterior wall of the culdesac by friable adhesions, which are easily separated with a finger. The separation exposes a thick, yellowish pus. On the lower left side there is a laceration in the uterus, 2.5 cm. long, which admits one finger very easily. The uterus weighs 325 Gm. and is removed intact. On opening into the uterine cavity through the anterior wall, this laceration is found to be continuous with the cervix on the lower left side. The uterine wall around this laceration is very friable and is deep purple-red in color. The endometrial lining above the laceration and in the fundus is a light grayish-pink and appears normal. The ovaries appear normal.

The organs of the Head and Neck are not examined.

Diagnoses:

1. Transverse presentation with prolapsed arm. (Cl.)
 2. Version and Extraction. (Cl.)
 3. Ruptured uterus.
 4. Generalized peritonitis with fibrinous adhesions and localized abscesses.
 5. Bowel obstruction (clinical).
 6. Paralytic ileus.
 7. Sigmoidostomy.
 8. Puncture wounds.
 9. Cloudy swelling of the kidneys, liver and spleen.
 10. Sero-sanguineous pleural effusion, left.
- Note: Rupture was not sutured?

IV. ABSTRACT: RUPTURE OF UTERUS

1. References:

- (1) Williams, J. W., Obstetrics, 5th Edition, D. Appleton & Co., 1926.
- (2) DeLee, Principles and Practice of Obstetrics. W. B. Saunders & Co., 787-805, 1924.
- (3) Greenhill, J. P., Amer. J. Obs. & Gyn. 19, 582-85, 1930. Discussion of Potter's, I. W., paper on 17 cases in 1700 deliveries.
- (4) Lobenstine, R. W., Amer. J. of Obs. 60, 810-852, 1909.
- (5) Potter, I. W., Amer. Jour. Obs. & Gyn. 19, 289-294, 1930.
- (6) Holland (quoted by Greenhill)
- (7) Kerr, C. W., J. Obs. & Gyn., Brit. Empire, XIV, 1-22 (July) 1908.
- (8) Baisch, D., Beitr. zur Geburt. und Gyn. VII, 249-283, 1903.

2. General Statement:

Varies in frequency, usually complete, multiparas, occurs at any time including pregnancy. Vaginal vault may rupture (alone) less frequent.

3. Frequency: General - 1-500 to 1000 deliveries, (1); 1-234 to 1-6100 (2); 6-50,000 (3); 78-60,000 (4); 15-1700 (5); After Cesarean Section 4-16% with lower incidence after cervical operation (only 22 in probably 50,000 operations (6) Variability probably due to hospital statistics and general figures.

4. Parity: 5 primipara (3 of vaginal vault). 44 multipara (complete); 11 multipara, 18 primipara (incomplete). (4) Collected series 388 multipara, 52 primipara (4); multipara 8 times as frequent as primipara, more with succeeding pregnancies (30-40 years). (2)

5. Cause: (1) (7) a. During pregnancy. b. Early labor. c. Protracted labor. 1st group: 1. previous injury (Cesarean section). 2. Perforation following sound or curette (subsequent delivery). 3. After removal of adherent placenta. 4. Falls, injuries, blows (see our case). 5. Rudimentary horn. 6. Infantile (usually sterile). 7. Hydatiform mole. 8. Hyaline degeneration of wall (Moyer). 9. Invasion of chorionic villi.

3rd group: Bandl's paper (1875) clarified understanding of mechanism of labor (lower segment). Ring is drawn up during labor, cervix is fixed. Prolonged labor results in excessive thinning of lower segment. Conditions which favor rupture are contracted pelvis (30-40%), neglected transverse presentations (11-32%) our cases. (Tear usually after bag is ruptured, shoulder is impacted and version is attempted) hydro-cephalus (3-11%), large fetus, other unfavorable presentations, stenosis of birth canal, trauma, pelvic tumor, ascites, operative procedures. Collected cases prior to 1909: 779 ruptures - 488 were contracted pelvis or deformities (4). May occur during removal of placenta. 2nd group stands midway between (1st and 3rd). High forceps, internal version, dilation for placenta previa centralis, etc. Middle-aged women with pendulous abdomens are prone to injury in labor. Other favoring factors are falls (5 months to term) usually higher up (fundus), pathological insertion of ovum, anomalies of uterus (usually about 4 mos. (3); interstitial pregnancy, diffuse adenomyoma, post myomectomy, very thin wall, sometimes during pregnancy without known cause. Condition may occur at any time after second month. More after prolonged than vigorous short labor (thinning of segment).

6. Symptoms: (1) Shock, abdominal pain, mild or severe. Patient frequently calls out that something has given way. Lower zone of uterus is sensitive. Presenting part may move with uterus beside body of fetus.

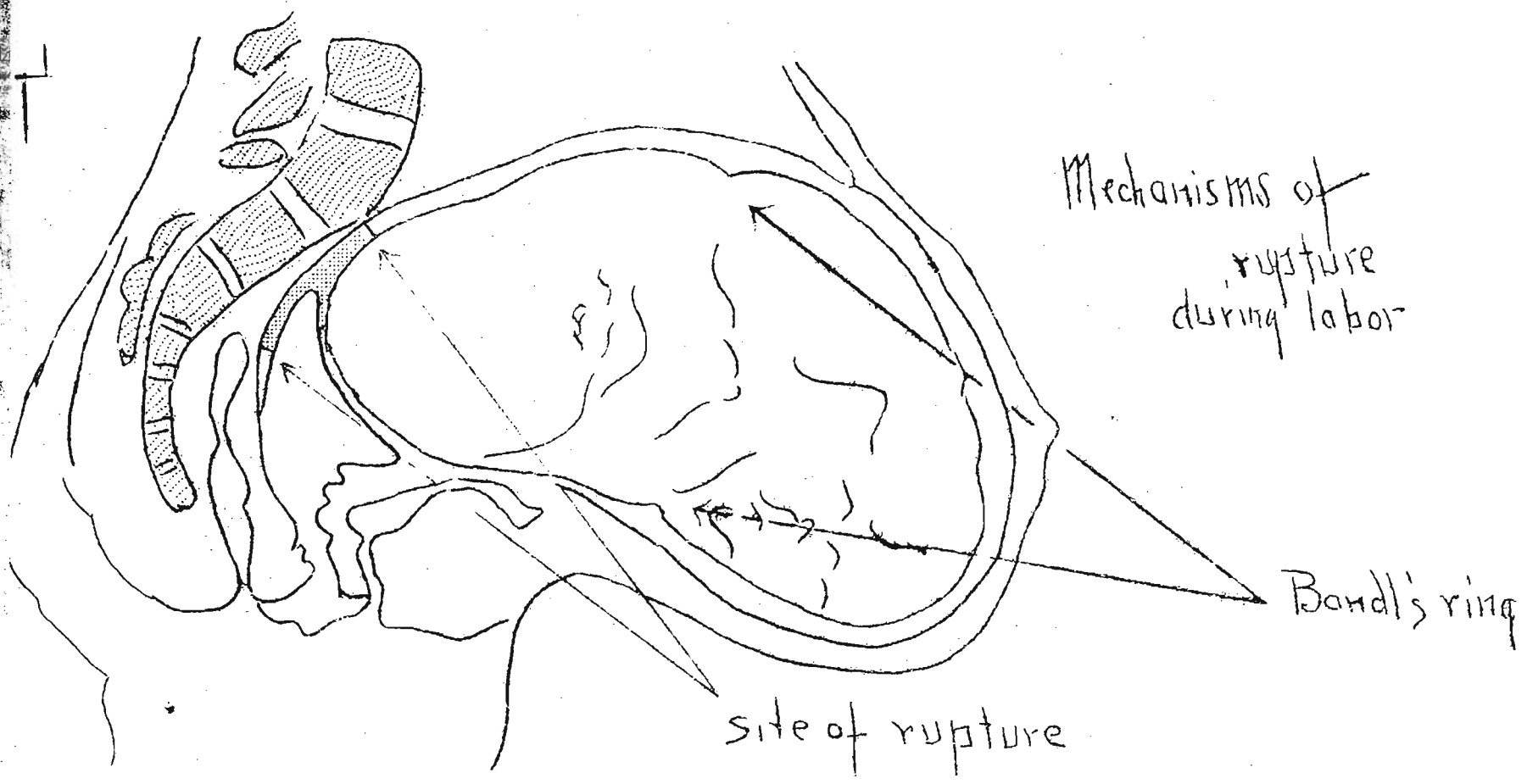
7. Treatment: More cases appear in homes of poor than in hospitals. Prenatal care should bring about early recognition of contracted pelvis, large fetus, unfavorable presentations, etc. If fetus escapes to abdominal cavity, do laparotomy at once, followed by suture of tear or removal (like tears of spleen).

8. Mortality: (4) Material
In 46 complete ruptures, 34 deaths (74%).
In 3 of vaginal wall, 1 death. In 29 of incomplete ruptures, 8 deaths (28%).
Gross mortality (54%). Some of these also had placenta previa or eclampsia.
Fœtal mortality 83%. (complete).

Vaginal wall (2/3), incomplete 52%.
Gross 70%. Collected literature (material) (60-65%).

9. Conclusions:

1. Rupture of uterus is infrequent (variable) complication of pregnancy or labor.
2. More common in multipara.
3. Outstanding causes are contracted pelvis, transverse presentation and hydrocephalus.
4. It is always a possibility after ringing or disease of uterine wall, e.g., Cesarean section, myomectomy, hyaline change, scars of any sort, etc.
5. Falls in early months of pregnancy may cause it.
6. Malformed uteri frequently rupture, also interstitial pregnancy (early).
7. Symptoms are shock, pain, change in foetal position, tenderness of lower uterine segment.
8. Treatment is surgical.
9. Maternal mortality (60-65%) foetal (70-80%).
10. Version following early rupture of membranes in transverse presentation with impaction of shoulder may cause rupture.
11. Middle aged, multipara with pendulous abdomens may suffer "physiological" rupture in prolonged labors from thinning of lower uterine segment.



Kolporrhhexis
rupture vaginal fornix

Rupture lower uterine segment

Cervix impinged by head

lower uterine segment thins out

