

## REPORT OF A CASE OF CHOLELITHIASIS COMPLICATING PREGNANCY.

BY

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CHOLELITHIASIS, quoting Osler(1), is an exceedingly common condition, being found at necropsy in from 5 to 10 per cent. of subjects dead from all causes. It occurs at all ages but the incidence increases progressively with advancing age,—75 per cent. or more of the cases are found in persons over forty years of age and less than 1 per cent. in those under twenty. Rarely, the disorder is encountered in infancy or childhood. The majority of cases found in infancy are doubtless due to intrauterine infection. Gall-stones are more common in women than men.

Gall-stones are especially common in those who lead a sedentary life as contrasted with laborers and others who work much outdoors, in woman as contrasted with man, etc.; as part of a general muscular inactivity, the abdominal muscles and the diaphragm contract feebly and the bile, inefficiently expelled, stagnates in the gall-bladder. Similar consequences ensue upon obesity and disorders which interfere with the free movement of the diaphragm.

In women a number of factors contribute: in addition to a more sedentary life, they are more often the subject of hepatoptosis or nephroptosis, brought on by repeated pregnancies and other factors that occasion more or less continuous distention of the abdomen and interfere with the movements of the diaphragm.

In consequence of the prolapse of the liver, the gall-bladder becomes dependent and the cystic or common bile duct kinked, or perhaps has considerable traction brought to bear upon it and becomes obstructed, so that the gall-bladder is less easily emptied than in health and is more disposed to infection. The association of cholelithiasis with pregnancy is undeniable, but its importance is difficult to estimate, since the great majority of middle-aged women, whether or not they suffer from gall-stones, have been pregnant. There is some evidence, however, that gall-stones are more common in those who have been pregnant, especially repeatedly pregnant, than in those who were never pregnant. Perhaps in some cases puerperal infections are the cause of gall-stones. Sometimes the biliary infection, though often misinterpreted, can be definitely determined to have been acquired during the puerperium. No doubt the beginning of the gall-stones in case cited by Rufus B. Hall(2) at American Association of Obstetricians and Gynecologists September, 1915, started from the puerperal infection. Osler(3) quoting Naunyn states that 90 per cent. of women with gall-stones have borne children.

DeLee(4) says that it seems pregnancy is a factor in the development of gall-stones and it is not rare that the gravida have attacks of biliary colic. These seldom occur before the fifth month and jaundice with chills and fever is more common than in the non-pregnant state. Berkeley and Bonney(5) claim that in 30 per cent. of the cases, the attack occurs in the first five months of pregnancy. Cholecystitis is easily mistaken for appendicitis and pyelitis.

#### AUTHOR'S CASE.

*History.*—Female twenty-seven, American, housewife. Delivered of a male child three years ago. Patient seen for first time December 7, 1914. She was bleeding from vagina and passing clots. Vaginal examination showed a rectocele and a poorly repaired perineum—no muscle in perineum and was full of pin-point holes from the skin into the vagina. It was like a sieve. Patient had a perineorrhaphy following labor and a secondary perineorrhaphy the following year by the same physician with the above result. Found uterus prolapsed into vagina, cervix patent and easily dilatible and vagina full of clots. Diagnosis: Inevitable abortion. Manual delivery of a fetus—size  $3\frac{1}{2}$  months. Patient up and about in ten days.

January 12, 1915, operated on by Dr. Ross McPherson assisted by Dr. Finkelstone. Dilatation of cervix, perineorrhaphy, appendectomy and suspension of uterus was done. Jan. 14, had a calomel run which "distressed" her very much—did not know patient had an idiosyncrasy to calomel, which gives her a marked gastric disturbance. Menses on Jan. 17. Allowed to sit up in bed with a

back-rest, Jan. 18, for two hours after which she complained of "aching pain throughout the chest." Vomited about 5 oz. of fairly well digested food at 8 P. M. Morph. sulph. gr.  $\frac{1}{4}$  did not stop pain. Temperature 98°; pulse 86; respiration 22 January 19. In morning vomited 4 oz. of thick brown fluid—particles of undigested food. Sutures removed. Complained of same "aching pain throughout chest," relieved at times by belching. Urine examination negative.

January 20, complained of pain at upper right side of incision. Temperature 100; pulse 100; respiration 22. Blood examination: W. B. C. 6000; P. 80; L. M. 15; S. M. 5; E. O. B. O. Patient not jaundiced. Diagnosis: Cholecystitis (due either to lighting up of an old lesion in gall-bladder from gall-stones, calomel idiosyncrasy or following an appendectomy. In those cases following an appendectomy, the gall-bladder was no doubt involved at some previous time). Patient denies former gall-bladder attacks or even gastric disturbances—although she does say that ten years ago she had typhoid-malaria (?) and that she was "always taking calomel and quinine to drive away malaria." Patient seen in consultation by Dr. Ross McPherson in the evening, who concurred in the diagnosis of cholecystitis.

Pain somewhat relieved by hot flaxseed poultice and became less severe until January 24, when there was slight pain in the upper region of the wound for about five minutes.

January 26, 7.00 A. M. another severe attack of pain. About 6.00 P. M. vomited undigested food and pain was relieved.

January 28, patient up in a chair. Had slight lumbar pain.

February 8, discharged in good condition—wound healed by first intention.

April 1, röntgenogram by Dr. McKee showed dilated duodenum. Diagnosis: adhesions around gall-bladder or gall-stones, though picture showed no stones.

Recourse to x-ray is seldom of much diagnostic utility since cholesterol stones show scarcely any shadow, usually not more than the adjacent liver, though Cole(6) says biliary calculi can be detected in 50 per cent. of the cases by röntgenograms. In another article(7) he writes that gall-stones may be detected sufficiently often to justify a röntgenographic search for them, but the absence of any direct evidence does not justify one in making a negative diagnosis, and should not prevent surgical intervention provided it is clearly indicated by the history.

April 8, 1915, saw patient for amenorrhea. Last menses March 5, 1915. Vaginal examination negative. Could not find Ladinski's sign of early pregnancy due perhaps to unfamiliarity with sign. From history made diagnosis of suspected pregnancy. Considered an interruption of pregnancy on account of gall-bladder condition plus the suspended uterus based on Kosmak's views(8). Kosmak says that a patient with a suspended uterus is liable to difficult or

abnormal labor. McPherson advised that pregnancy not be interrupted as he claimed that in his own cases of Giliam suspension, his observations were at variance with Kosmak's. In fact he claimed that in his experience quite often soon after a Giliam was done, the patient became pregnant.

On May 15, diagnosis of pregnancy confirmed on vaginal examination. May 16, patient had slight attack of gall-stone colic. June 8, another attack of cholecystitis. Pain continued three days—at no time was jaundice present. Tried all recognized medical treatment with no relief. July 20, another attack of gall-stone colic. August 24, another attack of pain in right epigastrium which  $\frac{1}{2}$  gr. doses of morphine did not relieve. Saw patient daily until Sept. 2, when writer threatened to withdraw from case unless patient consented to operation as he feared making an habitue of patient since she had received  $\frac{1}{2}$  to 1 gr. doses of morphine daily since August 24, with an addition of 10 min. of Magendie's sol. once or twice daily. (Magendie's sol. seemed to have better effect than morphine sulphate.) Besides with such great amount of narcotic, the effect on the fetus had to be considered.

Evidently the fetus in early pregnancy can withstand more narcotic than the full-termed child or else the placenta does not transmit the drug in early pregnancy as readily, which makes one wonder whether it is not scopolamine that gives the untoward action in so-called "Twilight Sleep," or the effect of morphine in combination with scopolamine. Editorial in *Jour. Amer. Med. Ass'n.*(9) shows that, according to H. G. Barbour and N. H. Copenhaver, studies of the combined action of these drugs on the central nervous system exhibits a true synergism; *i.e.*, the narcotic effect of the combination has appeared more profound than the algebraic sum of the effects of the same doses given separately. Barbour claims in the case of direct action of these drugs on an isolated uterus, no synergism or antagonism has been discovered. M. I. Smith(10) says that the toxicity of the scopolamine-morphine combination in the mouse is increased with the relative increase of the scopolamine content of the combined dose. The fetus in utero may survive despite the fact that large doses of morphine are taken into the mother's circulation (Sajous)(11).

In August, 1915, patient seen by Dr. Howard Lilienthal, who advised an immediate operation to relieve symptoms by incising and draining gall-bladder and keeping fistula open, followed by a cholecystectomy after labor. Patient and family refused operation fearing it might interrupt pregnancy.

Various authorities claim that it is better to wait until after delivery for operation if possible, but in the presence of a strict indication, one may have to drain the sac before labor. Ross

McPherson declared that cholecystostomy was no more liable to produce abortion than any other abdominal operation in which the uterus was not much disturbed. Berkeley and Bonney(5) say that the coincidence of the symptoms and signs of gall-stones and pregnancy does not alter the recognized treatment of the former except in the latter month or two when owing to the diminished accessibility of the gall-bladder by reason of the intestine being crowded into the upper abdomen it is advisable to postpone any operation until after term unless the condition is urgent. They continue by saying that the operation has no particular tendency to cause miscarriage or premature labor, but if the child is just approaching the period of viability the operation should be postponed for a short time, if possible, in its interest. The operative mortality is returned in pregnancy as 13 per cent. and the puerperium as 10 per cent. in the latter operation. The later the operation, the more difficult it is technically due to the large uterine tumor. Only that operation should be done which will quickest remove dangerous conditions (Peterson). Operation should be postponed, if possible, until after delivery, at least as late in pregnancy as possible because premature labor may occur and the child be lost (DeLee)(4).

September 2, patient consented to operation. September 3, cholecystostomy done by Dr. P. W. Bill assisted by B. B. Finkelstone. Gall-bladder marsupialized and eighty-six gall-stones of small size removed. Patient discharged in twenty-one days; fistula healed in twenty-four days. Allowed fistula to close as gall-bladder wall at examination seemed in good condition. It also seemed that the symptoms would clear up. That it might have been better to allow it to remain open, only the future would show. Urine negative. Stools never clay-colored since patient came under my care. As far as could be ascertained at that time, patient had made a complete and uneventful recovery, wound being healed by first intention except where drain was inserted. Abdomen shows a fetus nearly seven months in L. O. A. position. Fetal heart 124. November 12, patient examined shows nine months pregnancy L. O. A. Fetal pulse 128. Urine negative for sugar, albumen and bile. December 1, urine negative.

December 11, 1915, patient in labor L. O. A. Fetal pulse 134. Delivered of a full-termed healthy male child. During second stage of labor when head was bulging perineum all of the vulva on the left side from perineum to near the clitoris was drawn over the child's head like a caul. It was impossible to push the labia on that side off of the head with the result that the head pushed through this obstacle as through wet paper, and the head, instead of being extruded through the normal vaginal orifice, came through this aperture tearing the left labium minus to the clitoris. With the

head came the posterior shoulder. The birth of the anterior shoulder was prevented by the separated labia blocking progress. This was incised to allow completion of labor. After placenta was delivered, trimmed off the posterior fragment of tissue as far as perineum, taking only skin and mucous membrane. Sutured the ant. flap; *i.e.*, the labium minus sinistrum in situ. Patient had a mucous tear of perineum which was repaired. Un-eventful recovery for mother and child. Vaginal examination tenth day showed perineum intact and incised and sutured part of vulva intact—cervix one finger dilated, uterus free, movable and in good condition. Patient discharged apparently well.

The separation of the labium minus was due perhaps to a not easily dilatable vaginal orifice following the perineorrhaphy. Separation of the labium minus is a rare condition. I have only seen one case before which occurred in an instrumental delivery. In spontaneous labor there is seldom more than slight abrasions on the inner surfaces of the labia minora (Williams 12).

*Subsequent History.*—January 8, 1916, called to see patient. Complained of slight pain in right epigastrium induced as her family thought by lifting her boy four years of age out of crib. Consultation with Dr. P. W. Bill. Diagnosis: torn adhesions in region of gall-bladder. January 9, slight pain just below the xiphoid. One A. M. January 10, patient in severe pain in same site, "felt as if it was boring through to the back." Diagnosis: cholecystitis. Pain was very severe and greater than before removal of gall-stones. Pain liable to occur at any time and generally a few hours after meals. Dr. J. C. Lynch saw patient in consultation and concurred in diagnosis of pylorospasm due to pericholecystitis.

January 12, röntgenograms by Dr. W. A. LaField showed the following:

*Stomach.*—Normal as to size and relative position, the lowest point of the greater curvature is one inch above the umbilicus, the pylorus is to the right of the median line and four inches above the umbilicus. There is not any defect in the gastric outline. The peristaltic activity of the stomach is increased, suggesting duodenal irritation. At the end of six hours there is some residue.

*Duodenum.*—The duodenal cap is even in contour but considerably distended; the diameter of the full duodenum exceeds two inches. (Normally the duodenal cap is one inch to an inch and a quarter in diameter.) The duodenum is fixed in the upper right quadrant.

*Intestine.*—At the end of six hours the bismuth meal is scattered through the small intestine, the head of the bismuth mass being in the cecum. The motility of the intestine is normal.

*Summary.*—These findings contraindicate a gastric or duodenal ulcer; they do suggest the presence of periduodenal adhesions resulting from a cholecystitis with a resulting partial occlusion of the duodenum at the junction of the first and second portions."

This day pain was very severe. Morph. sulph. gr.  $\frac{1}{2}$  to gr.

1 by mouth only gave slight relief. Patient seen on January 13, and advised removal to hospital to try to relieve pyloric spasms by rectal feeding and get patient in condition for a cholecystectomy. January 14, admitted to hospital—seen daily thereafter by Finkelstone with J. C. Lynch. January 14, seemed weak and pale, as she expressed it “washed out.” No jaundice present. Urine 10.30 negative except for bile. At 6:00 P. M. had severe abdominal pain and a mass was palpable at right side of gall-bladder scar. No doubt the gall-bladder filling up. Temperature 99; pulse 80; respiration 20. Diagnosis: cholecystitis. Pain continued daily at various times, lasting from a few seconds to an hour or more.

January 16, patient menstruating, which is quite unusual in a nursing mother less than five weeks following a labor. (This might tend to prove also that whenever the menses begin, they begin on the exact date of that month it might have occurred if pregnancy had not interrupted menstruation. According to patient's menstrual history 28-day type and last menses March 5, 1915, without an interruption of menses, the regular period would have been due on January 15, 1916.)

This day, 9:00 A. M., had slight “shooting pains across abdomen” lasting a few seconds. Had same pains at 1:45 P. M., 3:55 P. M., 4:00 P. M. and 5:35 P. M. Pain at 6:00 P. M. lasted a little longer. Slight shooting pain at 7:50 P. M. Slight continuous pain from 9:00 P. M. to midnight, at long intervals after midnight.

January 17, examination by Lynch and Finkelstone showed mass in right epigastrium was smaller, due perhaps to gall-bladder discharging its contents. Comfortable day—no pain. Saline enema at 1:00 P. M. returned yellow liquid with large amount of feces. Slept well. Baby put on artificial feeding.

January 19, temperature 97; pulse 68; respiration 20. Patient given mouth feeding for first time since admittance to hospital. Cubes of steak to chew but not swallow. Glucose per rectum continued. 3i doses of water occasionally. At night tap water compress to abdomen. At 9:45 to 10:00 P. M. slight shooting pain on left side of abdomen lasting about one second. Slept during the entire night.

January 22, mass again palpable. Most likely the gall-bladder filled up again. Slight pain in region of stomach extending through to the back at 3:45 P. M. Continued and more severe until 5:45 P. M. Relieved after hypo. of morphine. After saline enema, stools light brown liquid, large amount of feces.

January 26, 8:00 A. M. temperature 98; pulse 62; respiration 22. 4:00 P. M. temperature 88; pulse 70; respiration 20. Complained of slight burning in throat in A. M. 8:30 P. M. consultation by Drs. Ross McPherson, J. C. Lynch and Finkelstone. Patient considered in good physical condition for operation.

January 28, 8:00 A. M. during pain temperature 101; pulse 126; respiration 30. Severe pain in abdomen and back especially on right side near base of lung. Physical examination showed fine subcrepitant rales at base of right lung. Patient has a septic sore throat. Diagnosis: diaphragmatic pleurisy. Coughs and expect-

torates very frequently after 4:00 P. M. Vomited 3iii of brown fluid having odor like beef-juice at 7:45 P. M. Patient delirious at times during the night. 9:30 P. M. temperature 107; pulse 126. Vomited 3iii dark brown fluid at 12:30 A. M. and 3:00 A. M. Defecation—large amount of clay-colored feces—for first time since patient has been under observation. Complained of feeling cold, but did not have a chill. Fairly comfortable night. Slept at long intervals. Operation postponed on account of patient's present condition.

January 29, 1916, 8:00 A. M. temperature 103; pulse 120; respiration 36. Extremities cold and clammy. Very drowsy. No pain but an indescribable feeling. Perspired freely. Patient slightly jaundiced. Finger nails somewhat jaundiced; under tongue shows marked jaundice. (This is the first time patient was ever jaundiced.) At 1:00 P. M. vomited medication, a fever mixture, immediately after taking. Vomitus showed large amount of brown and green particles, also a soft faceted gall-stone about  $\frac{3}{8}$  inch in diameter, which was easily broken. Slight cough and mucous expectoration. 3:00 P. M. temperature 100; pulse 100; respiration 26. Cheeks flushed. Respiration while sleeping 24-30. Slept greater part of day and night up to midnight. Then had dry retching which lasted 10 minutes, and vomited 3iii of greenish fluid. Complained of pain in left side of chest and abdomen.

January 24, mass still easily palpable. "Heavy weight" with slight pain in region of stomach at 1:45 P. M. Continued and gradually became more severe until 2:45 P. M. Temperature 99.8; pulse 90; respiration 20 during pain.

January 30, 9:00 A. M. temperature 100; pulse 98; respiration 20. Throat improving. Pain in side of abdomen and chest less. Slight red vaginal discharge—no clots—not the period for menses. Examination shows blood coming from uterus, due perhaps to bile in the blood. No examination of blood made for bile; at night some pain left side of abdomen on inspiration. Restless and unable to sleep.

January 31, jaundice entirely disappeared. Complained of some abdominal pain. Slept fairly well without an anodyne.

February 2, slight nose-bleed. Vaginal discharge slightly red. Slept fairly well. In fact patient seemed to improve rapidly since vomiting the gall-stone. Abdominal pain at rare times.

February 5, bowels moved well—very dark green, semiformed. Slight nose-bleed, also on February 6. Unusual for patient to have nose-bleed.

February 7, temperature 98; pulse 80; respiration 20. Patient up in chair for one hour. Discharged from the hospital February 11, in good physical condition.

February 12, examined by Dr. Howard Lilienthal. Operated upon by Dr. Lilienthal on February 15. Exploration shows a hard pancreas, evidently chronic pancreatitis and an enlarged gall-bladder. Mayo(14) states that in 2600 operations on the gall-bladder and biliary ducts, the pancreas was found coincidentally affected 141 times (6.1 per cent.). Infection generally spreads to the pancreatic



ducts especially the head, which may become so hard as to suggest carcinoma; later the organ becomes contracted and fibrosed (interstitial pancreatitis). In some cases, pancreatic lithiasis also occurs (Osler). According to J. B. McKenna, (15) the Mayos found the pancreas involved in 60 per cent. of all their operations in the gall-tracts. They also state that 81 per cent. of pancreatic diseases is the result of, or coincident with, gall-stones. Egdohl says cholelithiasis is the most frequent single cause. Robson found the pancreas involved in 60 per cent. of cases in which gall-stones were in the common duct. In the Mayos' experience it was found that pancreatitis was four times as frequent when the stones were in the common duct as when they existed in the gall-bladder.

Adhesions broken up. Cholecystectomy done and the duodenum drained. On examination, the gall-bladder was thickened and imbedded in the inner wall of the gall-bladder neck, near the duct was a stone about the size of a bird seed. There was no gastro-cystic fistula so the stone must have gone in through the pylorus (Lilienthal).

Sajous (13) writes "Calculi have been expelled from the stomach which either found their way to the stomach into the viscus directly, or as is more commonly the case, have been regurgitated from the duodenum."

#### RECAPITULATION.

This case presents many points of interest. For nearly a year with marked symptoms of cholecystitis and cholelithiasis, patient showed no jaundice, no gray stools, no fever up to the time of subsequent history. The rise in temperature was due to septic sore throat and diaphragmatic pleurisy. At no time even during or after a gall-bladder colic did temperature vary more than one degree. That it was good judgment in not interrupting the pregnancy on account of suspension was proven as during pregnancy there were no symptoms due to adhesions and after labor the uterus was found freely movable; that morphine in large doses given for pain does not apparently affect the fetus *in utero* as child at birth was considered healthy and has continued so up to the present time, notwithstanding the artificial feeding since the fifth week of birth. The character of labial tear is quite rare. Vomiting of a gall-stone is a very rare condition, especially without a fistula, leading into the gastro-intestinal tract from the gall-bladder.

It hardly seemed a mistake at the time when the fistula was allowed to close up, for except for the gall-stones being present, the gall-bladder seemed perfectly healthy, and perhaps no need of a secondary operation. It must always be taken into consideration that infection can be transmitted into the gall-bladder through

fistula from without. From very limited observation, I agree with various authorities that no gall-bladder is healthy that does or ever did contain gall-stones. It is diseased from the fact that it contained stones.

It hardly seems probable, though possible, that the stone had formed in the interim between both operations on the gall-bladder, but regardless of whether it had or had not, if the fistula had been allowed to remain patent, as Lilienthal had recommended, perhaps the marked pain due to pylorospasm might have been avoided, as the vomiting of the gall-stone seemed to relieve the condition. Though it might be possible that it was the pericholecystitis causing the spasms and that, the presence of such a small stone had nothing to do with the condition. Rectal feeding had a minor rôle in the relief of the pyloric spasms.

L. W. Swope(16) in a paper read at *Amer. Ass'n of Obstet. and Gyn.*, Sept., 1915, says that at all times it is advisable, if possible, to do a cholecystectomy instead of a cholecystostomy. He states that no absolute rule can be laid down to guide the operator in determining when cholecystectomy is preferable to cholecystostomy. In 2600 cases in which he operated in upper abdomen where there was, primarily or secondarily, any implication of the gall-bladder and the bile-ducts, later reports of the recovered showed 96.8 per cent. of cures; the remainder suffered from symptoms probably indicative of associated gastric or pancreatic disease. In cases of cholecystostomy there were only 74.8 per cent. of cures, the remainder being no better, and many of them worse, than before the operation. The mortality in cholecystectomy as compared to cholecystostomy is only slightly higher, *i.e.*, a fraction of 1 per cent. he claims.

The finding of a chronic pancreatitis is nothing unusual and it ought not to lead one to error if on exploration to the touch the pancreas feels hard, as Lilienthal expresses it, "as hard as nails," to make an incorrect diagnosis, *viz.*:—carcinoma of the pancreas.

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