

GENERAL STAFF MEETING
UNIVERSITY HOSPITALS
UNIVERSITY OF MINNESOTA

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1. ANNOUNCEMENTS

1. Mortality Report

I. Malignant

A. Examined

Carcinoma of cervix uteri f 42
Lipoma of brain m 22

B. Not Examined

Carcinoma of ovary f 64
Carcinoma of vagina f 70

II. Non-Malignant

A. Examined

Appendicitis, acute,
(perforation) m 9

Benign hypertrophy of
prostate m 69

Birth trauma; tentorial
laceration f 16hr.

Birth trauma; tentorial
laceration; premature m 9hr.

Bronchopneumonia, acute f 1

Bronchopneumonia, acute f 2mo.

Coroner's case - compound
skull fracture f 10

Endocarditis, rheumatic m 27

Hemorrhage of pia arach-
noid m 1mo.

Marasmus f 1

Meningitis, acute, purulent m 1

Meningitis, pneumococcus,
mastoiditis f 38

Pelvic abscess, cause? f 66

Sclerosis, (lateral)
amyotrophic m 59

Stillborn m

stillborn m

Tuberculosis, miliary f 16

Vaginitis and colitis,
gangrenous (puerperal) f 25

B. Not Examined

Gangrene of lung m 26

Hypertension; cardiac
failure m 67

Renal insufficiency,
calculus f 36

25 deaths
20 autopsies
80%

2. Hospital Day

Nation-wide observance Tuesday, May 12, featured chiefly by marked increase in radio-time (local and national) to acquaint public with good deeds of hospitals. Open house will be held, baby parties will be given (graduates), costs will be explained, life of Florence Nightingale will be dramatized (birthday), luncheon club program chairmen will get a break in volunteer speakers, educational value of hospitals will be stressed. In final analysis, every day is hospital day and best publicity is pleased patients. Old idea that hospital conferred favor by admitting patient is over. Although "time" is least important consideration of patient it is "his" most important consideration from service standpoint. University Hospitals are proud of nursing organization, working under marked difficulties (increased work, decreased personnel), but still delivering good service. Courtesy of attendants means much to all. Relatives as general rule are "tail which wags the dog". Be sure to use social service and administration to help on problem cases. Telephone operators with kind, patient, tactful, musical, interested voices speak for all of us. The way press is handled is most important. Be sure to show no effort at concealing anything. We need right sort of publicity. If facts are better not known give newsman full explanation and reasons for request of little or no publicity. Let us make every day Hospital Day at University Hospitals by having satisfied patients.

3. Tumor Conference

Friday, May 15, 1931, Todd Amphitheater. L. G. Ericksen Report of 120 cases of squamous, basal, mixed carcinomata of skin treated at University Hospitals during four year period by radiotherapy. Very interesting subject showing correlation of tumor type with radiation response and end results. Starts at 11 A.M.

4. Reuben A. Johnson

has most interesting specimen of week. Patient with pleural effusion was repeatedly tapped. Malignancy was considered but could not be demonstrated (probably ovarian metastases).

It was noted that one of the puncture wounds was developing nodule about it. Biopsy was done (of this area) and sections showed adenocarcinoma with marked fibrosis. Amer. Jour. Cancer XV (2) 863, 871 (April) 1931 has report of diagnosis of bronchogenic and pleural tumors by needle biopsy (if inaccessible parts).

5. Modern Health Movement started latter part of last century. Transition from "spirit belief" to modern concept came about thru, (1) environmental studies. Sanitary medicine (public health) is applied social medicine. Second step was discovery of (2) role of microorganisms in disease (explained many troublesome questions of environmental medicine). Interesting that source of disease was predicted in many instances before medium (microorganisms) was discovered, e.g. typhoid fever. Third phase was use of (3) statistical method in studying medical problems. Most valuable contribution styled book-keeping of humanity. Greatest value in forming opinion as to nature, course, effects of treatment; of little value in judging factors in individual case. Extended use of this type of abstract in Staff Conference rather than individual opinions based on hearsay, personal factors, etc. is obvious. At present time it is unfortunate that we do not have "statistical opinion" of our own work at Minnesota to present with each subject. Value emphasized at last clinico-pathological conference when Logan Leven gave us bird's-eye picture of our own experience with carcinoma of pancreas in connection with discussion of another case. Did you know that each meeting is duly reported by Secretary Gunn and your remarks are incorporated in record? These have been typed and will be included in annual bound volumes for reference. Conferences will be continued until school is out in June. Summer recess will then be declared and discussion of programs for next year will be in order. If plan is to be continued it is our hope that we will be able to prepare part of our fall meetings in advance so that your remarks as well as opinions of others will be included. Until then our sincere appreciation for your assistance in the past.

The fourth phase of the modern health problem is personal health interest.

II. Case Report

RECURRENT PRIMARY SOLID CARCINOMA OF OVARIES WITH METASTASES TO NODES, PERITONEUM, DIAPHRAGM, OMENTUM, LIVER AND BONE.

The case is that of a white female, 70 years of age, admitted to the University Hospitals 2-18-31 and died 5-5-31 (76 days).

Pain, Mass.

Dec. 1929 The patient began to have a dull pain in the left lower quadrant. The physician, who saw her, palpated a mass in the left lower quadrant which was firm, movable and tender to touch. Patient had a bilateral oophorectomy at this time. Two tumor masses were removed about the size of a grapefruit. Pathological diagnosis: Adenocarcinoma of the ovary. Postoperative diagnosis: Patient felt fine except for loss of 20# in weight.

Recurrence

Oct. 1930 Patient noted recurrence of pain over lower abdomen which was dull and constant in character.

Dec. 1930 Patient began to have alternate attacks of constipation and diarrhea.

Ascites

12-18-30 Began to have enlargement of the abdomen and dyspnea also noticed. Saw physician and he advised her to go to the General Hospital.

X-ray

1-22-31 Admitted to the General Hospital. Patient had extreme constipation and marked anorexia. X-ray treatment was given which relieved pain but later the patient began to vomit.

Mass 2-18-31

Discharged from the General Hospital. Admitted to the University Hospitals. Physical examination at this time showed the abdomen distended, a fluid wave and shifting dullness present in the flanks, a suggestive mass in the right lower quadrant, cervix to point downward, back-

ward, and is fixed, large masses in both adnexa which are fixed feeling like infiltration. Urine showed trace of albumen and many white blood cells. Hemoglobin 85%, wbc's 8,500, P 82%, L 17%, and M 1%. Pulse 90; temperature normal.

2-19-31 Blood urea nitrogen 18.7 mg. Blood Wassermann to State Board negative.

2-22-31 Patient had a pain in the abdomen. 1 oz. mineral oil given b.i.d. Fecal impaction removed.

Bone Tumor

3-2-31 Patient complains of some abdominal pain. X-ray of the lower dorsal and lumbar spine - Considerable atrophy of both the thoracic and lumbar spine is present this being particularly marked in the lumbar spine. There is considerable rarefaction in the anterior portion of the 5th lumbar vertebrae which is somewhat suggestive but not particularly characteristic of a malignant infiltration. There is also some rarefaction present in the anterior portion of the first lumbar vertebra and some in the posterior superior portion of the third lumbar vertebra. Both of these are very suggestive but not entirely characteristic of malignant infiltration. Conclusions: Atrophy of thoracic spine. Probable osteoclastic metastasis to lumbar spine.

Vomits

3-5-31 Patient vomits frequently. Emesis of greenish color. Has considerable pain. Urine shows trace of albumen and occasional white cells.

3-11-31 Patient complains of abdominal pain. Aspirin gr. x. Codeine gr. 1/2 given for pain. Blood urea nitrogen 17.1 mg.

X-ray

3-13-31 Patient goes to deep x-ray. 60% is given anterior and posterior, 60% right and left lateral abdomen, 6 treatments in 12 days, advised and given. P 92; T normal.

Puncture

3-28-31 The patient is very restless, complains of a pain in the right side of the abdomen 6700 cc. of greenish fluid is obtained by abdominal paracentesis.

4-1-31 Patient has emesis of 200 cc.

of yellowish fluid. Gastric lavage. 500 cc. of saline given. 1000 cc. 10% glucose given per vein.

Fluids

4-2-31 2000 cc. normal saline given subcutaneously. 1000 cc. glucose given per vein. P 80; T 99.

4-3-31 Emesis of 100 cc. of brown fluid. Paregoric dram 1 given three times daily. Intravenous 2000 cc. of 10% glucose given. Pulse 100; temperature 99.

Puncture

4-5-31 Emesis of 200 cc. light yellowish material. Patient feels drowsy. 2000 cc. of 10% glucose given per vein. 1500 cc. of yellowish fluid is obtained by an abdominal paracentesis.

Diarrhoea

4-13-31 Patient is not vomiting as much now. Complains of some diarrhea. 1000 cc. 10% glucose given per vein. Urine is negative. Blood urea nitrogen 27.7 mg. Pulse 120; temperature 100.

Fluids

4-27-31 Patient given daily intravenous 1000 cc. 5% glucose per vein from 4-14-31 until present date. Feels nauseated and vomits daily. Has some pain in the abdomen. Urine shows +1 sugar. Hemoglobin 63%, 3bc's 3,500, rbc's 2,400,000. Blood urea nitrogen 10 mg. Has chill which lasts for about a half hour. Pulse 100; temperature 100.4.

4-30-31 Hypodermoclysis 1000 cc. of saline and 5% glucose. Patient feels very drowsy and has involuntary defecations. Pulse 140; temperature 102.

5-4-31 Patient does not respond. Egg-nog is given per stomach tube. Is somewhat cyanotic. Respirations are somewhat labored. Pulse 136; temperature 103.8.

Exitus

5-5-31 Patient is very much weaker. Respirations are labored; pulse imperceptible; Cheyne-Stokes respirations are noted. 6:10 P.M. - Patient died.

Autopsy

The body is that of a fairly well developed and poorly nourished, elderly white female, measuring approximately

153 cm., and weighing approximately 85#. Rigor is present; hypostasis is purplish and posterior; slight pitting edema to the knees. There is a dorsal decubitus ulcer over the sacral region about 5x5 cm. There is an old, lower, abdominal, healed incision 12 cm. long in the midline and two paracentesis scars on the abdomen.

The PERITONEAL CAVITY contains about 4000 cc. of clear, straw-colored fluid. There are numerous, firm, fibrinous adhesions present to the old operative incision and throughout the bowels are adherent to one another, especially in the pelvis. The APPENDIX is small, atrophic, and adherent to the adjacent coils of bowel.

When opening the PLEURAL CAVITIES, firm fibrinous adhesions are found on the base of the right lung and apex. There is some straw-colored fluid present in each pleural cavity. The PERICARDIAL SAC contains a minimal amount of clear fluid.

There is a small epicardial plaque over the right ventricle. There is some fat over the heart. The HEART weighs 200 Gm. The valves are normal. The coronaries show a minimal amount of sclerosis. The ROOT OF THE AORTA is normal and shows slight sclerosis.

The LEFT LUNG weighs 200 Gm., the RIGHT 260 Gm. The lower lobes of both lungs are slightly congested. There is no evidence of bronchopneumonia.

The SPLEEN weighs 80 Gm. and on cut section is dark red in color.

The LIVER weighs 2080 Gm., is firm, and on cut section shows a typical nutmeg-appearing chronic passive congestion. Throughout there are several small areas of metastasis, measuring from the size of a pin-head to .5 cm. in diameter.

The GALL-BLADDER is normal except for adhesions. The glands around the gall-bladder are hard.

The diaphragm contains very numerous metastatic nodules. The omentum and lymph nodes are enlarged and hard.

The PANCREAS and ADRENALS are normal.

The LEFT KIDNEY weighs 155 Gm. and shows a few small retention cysts about the size of a walnut filled with a clear fluid. The RIGHT KIDNEY weighs 150 Gm. The capsule is adherent and when stripped shows a finely pitted surface. There is slight congestion of both the kidneys.

The GASTRO-INTESTINAL TRACT shows numerous adhesions to each other, especially in the pelvis where the coils of the bowel are firmly adherent to a fibrous mass in the vicinity of the bladder and the rectum.

The uterus cannot be seen nor felt but the only thing felt in the pelvis is a hard and fibrous mass. However in dissecting very carefully the rectum free, a very small uterus is noted which is free from any malignancy. The adnexa regions are a mass of very hard fibrous tumors. No distinct ovaries can be made out. There is a gelatinous type of fluid in the pelvis.

The BLADDER is normal. The organ shows a minimal amount of sclerosis.

Diagnosis

1. Carcinoma of the ovaries with metastasis to the regional nodes, omentum, liver, diaphragm, and peritoneum, bone?
2. Ascites.
3. Chronic passive congestion of the liver.
4. Retention cysts of the left kidney.
5. Pulmonary adhesions, right.
6. Emaciation.
7. Peripheral edema.
8. Old midline, operative scar.
9. Paracentesis wounds on the abdomen.

Comment:

Elderly white female developed pain and mass in left lower quadrant. Both ovaries were replaced by tumors size of grapefruit. Note: under classification of ovarian tumor (8-f) this would be primary solid tumor of one ovary with metastases to other, nodes, bones, skin peritoneum and sometimes other places (often late in bones). Symptoms returned one year later (apparent freedom in interval except for weight loss). Symptoms indicated intestinal involvement (constipation) pain, distension, dyspnoea (pressure?). Relief by x-ray? Next vomiting, recurrent mass, bone involvement, bowel obstruction, gradual decline, exitus. Typical story of ovarian carcinoma with rather short history? Not gelatinous fluid in pelvis at necropsy. Does this indicate origin from pseudomucinous cystadenoma or is it simply degeneration?

III. OVARIAN CYST AND TUMOR ABSTRACTS:

1. References: (a) Text-Book of Pathology, Bell, 1:273-279 (1930)
Lea and Febiger (Pathology): (b) Queries and Minor Notes, J.A.M.A. 95: 1445-1446 (Nov. 8) 1930 (Hormones); (c) Keene, F. E., and Kimbrough, R.A., J.A.M.A. 95: 1164-1168 (Oct. 18) 1930 (Endometriosis).
2. General: Ovarian disease is modified by anatomical and functional considerations (displacement, hyperemia, hemorrhage, involution, inflammation, cysts and tumors). Earlier views of treatment have been greatly changed by better knowledge of pathology and physiology of organ, i.e. fewer operations for removal of physiological cysts and hypothetical inflammation, rather general acceptance of lack of value of desicated preparations administered orally (no longer accepted by Council on Pharmacy and Chemistry, A.M.A., J. A.M.A. 95:1119 (Oct. 11) 1930. Positive contributions have been made to our knowledge of hormones, endometriosis, relationship to endometrial changes, granulosa cell tumors, effects of radiation, life cycle of cysts and tumors with effect of treatment and several others.
3. Hormones: One or two sex hormones (Frank, The Female Sex Hormone, 1929) One? responsible for all sex phenomena including estrus and menstrual cycles of lower animals and anthropoids, or two? an inhibitory one from corpus luteum to regulate rhythm of cycle and sensitize uterine mucus membrane (simultaneous secretion) Allen and Corner, Proc. Soc. Exper. Biol. and Med. 27: 403 (Feb) 1930 injected substance from corpus luteum of pigs which maintained pregnancy to term in spayed rabbits (operation 18th day after mating). Female sex hormone is found in follicle fluid, corpus luteum, placenta blood of females and males, urine of pregnant and non-pregnant women, feces bile, and other tissue fluids, also in plants. Isolated (active principle) Doisy, A., (St. Louis University) J.A.M.A. 94:1523 (May 10) 1930, called "Theelin". Anterior pituitary hormone also concerned (secondarily) causes, ripening of immature follicles and formation of corpora lutea (Aschheim and Zondek) also

termed (motor of ovarian activity." Extension of investigations will probably show even more important functions in sex life. Biological tests have been devised based on these hormones (of practical use in diagnosis of pregnancy). Commercial preparations of sex hormone are available (E. R. Squibb). Price is high, clinical results to date have not been striking, may produce unpleasant effects hypodermically. (Recently given in gelatin pessaries). Use in sexual frigidity has not been encouraging because of complicating factors. (Note: demonstration of mummified fetus of cow in B. abortus infection expelled following manual rupture of corpus luteum with continued pressure to stop hemorrhage was striking feature of unusual demonstration of comparative pathology by Division of Veterinary Medicine at recent meeting of Minn. State Medical Assoc., May 6, 1931). Cysts and tumors of ovary because of probable "involutional" origin may respond in future to preventive treatment by hormones with possible exception of rests (dermoids). Until then our problem is one of more intimate knowledge of these new growths and their management.

4. Retention cysts (follicular and luteal). Cysts developing in immature follicles are called follicular (only about 5% mature). Normally immature follicles usually atrophy. Ovaries may be two or three times normal size filled with small cysts often found in newly-born babies and young girls. Individual cysts are frequently found in adult life. Luteal cysts differ only in lining all types. Retention cysts seldom grow to large size and apparently do not give rise to cystadenomas. (Note: some authors trace development of all types from simple to complex).

5. Endometrial cysts (Chocolate cysts)
Islands of tissue resembling endometrium associated with cysts (hemorrhage) first described by Pick and origin developed by Sampson (S.G.O. xxxviii 287, 1924) Tissue under same cyclic stimulation as normally placed structure (menstruate). Also found in peritoneum (often pelvic) in 64 of 296 women operated on for pelvic disease and seeded out in monkeys (experimentally). Some are described as adenomyomas (Cullen). Found in body of uterus, tubes, umbilicus,

rectovaginal septum, laparotomy scars, etc. Formation of decidua may occur with intranterine pregnancy and atrophy at menopause. Keene and Kimbrough describe 118 cases from Hospital of University of Penn (see reference). A. location: ovary 110 (unilateral 63, bilateral 47) rectovaginal septum 6, umbilicus 2 (one with ovary) laparotomy scar 1. B. Complicating disease: association is striking. Uterine myoma (55%) chronic salpingitis (20%) adherent retroflexion (15%). Of the 61 myomas, 44 were uncomplicated associations of endometriosis, others showed in addition pelvic inflammatory disease, retrodisplacement, carcinoma of cervix, of other ovary, luteal cyst. Three ovarian cysts were found. No other diseases were present in 25 (21%). C. Age: Usually during menstrual life - 20-30 (19%); 30-40 (49%); 40-50 (25%); 50-60 (7%); youngest (22), oldest (60). D. Sterility: (70%) of group are married and 41% are sterile (other series showed (21%, 40%; 84%). Average time since birth of last child (10 years). High incidence difficult to evaluate because of associated disease. E. Menstrual anomalies: ovarian endometriomas per se produce no uniform alteration. Found no change (42%), menorrhagia (44%), metrorrhagia (8%), scanty (3%), amenorrhoea (2%), post-menopausal (2%). F. dysmenorrhoea always painful (11%), none (40%), acquired or increasing (49%), Other reports (70%) with acquired type (50%); 61% and 50+%. With invasion of bladder, rectum or rectovaginal septum pain and disturbed function occur only or are greatly exaggerated by menstruation. Majority do not have inter-menstrual symptoms but 45% had discomfort or pain in lower abdomen, pelvis or backache (another series 63%). Dyspareunia is also frequent. G. Diagnosis: subjective complaints vary in kind and degree. Special features are (1) age 25 - menopause. (2) sterility (absolute or relative). (3) abnormal menstruation usually menorrhagia, (4) acquired dysmenorrhoea, (5) dyspareunia (6) sacral backache, (7) intermenstrual pain with increased discomfort at time, (8) Bladder and rectal pain related to menstruation. In well developed cases **tender densely adherent semisolid or firm adnexal masses** with partially fixed

uterus is characteristic (often with myoma). Nodules in culdesac (by rectum) with normal rectal mucosa. Same is true of bladder. No bleeding as a rule. Hemorrhage (periodic), or pain and swelling in lesions of abdominal wall is also characteristic. H. Treatment: should be conservative if possible. Small ovarian tumors are excised and ovary left. Large hemorrhagic adherent masses are excised. Ovaries may be removed or irradiated for lesions elsewhere. Umbilical abdominal wall and groin masses are excised. Some masses produce hydronephrosis and bowel obstruction. One became malignant. Comment: fairly well defined clinical picture of endometriosis based on accurate physiological-pathological concept is described with plea for conservative treatment which is often not possible. Persistence of symptoms is due to ovarian function which must be altered if growths cannot be excised (irradiation trial?). Unusual features are described (hydronephrosis and bowel obstruction). Lesions may be confused with rectal and bladder tumors (see symptom complex). It seems that incidence of these lesions (although well defined type have been seen) at our hospital is low? Maybe due to size of material, pathologists' oversight or failure of clinical recognition.

6. Neoplastic cysts: a. (Pseudo-mucinous) cyst-adenoma - 50% of all ovarian tumors. (25% of cysts are bilateral). May be enormous (68 kilos) Roughly spherical with grooves. Practically all are multiple cysts in mass varying greatly in size. Probably originate from surface epithelium. Contents watery to mucinous, clear or yellow to brown (pseudomucin). Inner walls are smooth except for occasional small elevations. Cause pressure, adhesions, ascites, abdominal enlargement. Infection (abscess) may be seen, torsion of pedicle (infarction) rupture (transplants of pseudomyxoma). Malignant changes occasionally occur as soft solid cellular masses infiltrating beyond limits of cyst.

b. Papillary cystadenoma: less frequent and often smaller than preceding. 75% bilateral instead of 25%. Unicystic and multicystic, serous fluid, papillary

projections into cavities, often resembling solid growths or projecting out from surface, detached transplants (which grow or regress after removal of primary tumor) with frequent ascites. Many become malignant. 75% are cured by removal and 25% recur or metastasize. It is impossible to predict future although external projections and adhesive types are more apt to recur. All are potentially malignant.

7. Dermoid cysts: 10% of all ovarian tumors, hair, teeth, glands, etc. at any age, if any size offer good prognosis. (3% become malignant), but may be difficult to remove (adhesions and infection).

8. Carcinoma: 10% of all ovarian tumors earlier in life, frequently in children (solid or cystic) - (a) Cystadenocarcinoma: often solid, may develop from neoplastic cysts. (b) Solid primary tumors: originate in one ovary, may go to other, nodes, bones, skin and others. Late recurrences may be in bones. Prognosis better than (a). (c) Metastatic: solid, bilateral in 50% from stomach, breast, pancreas, colon and elsewhere. Krukenberg's tumor is metastatic carcinoma resembling primary sarcoma. Primary may be silent.

9. Teratoma: solid tumors usually fatal. Smaller than cystic.

10. Fibroma: hard nodular diffuse growths often replacing all ovarian tissue.

11. Leiomyoma: resembles foregoing grossly.

12. Sarcoma: 2-3% of all ovarian tumors: about 1/3 are bilateral. Found more frequently in young, soft to firm, diffuse or nodular, malignancy varies with cell type.

13. Parovarian cysts: from broad ligament. Usually unilocular, may not be very large, clear contents, no malignant tendency.

Summary:

1. Our knowledge of physiology and pathology of ovary is increasing.

2. Ovarian hormone has been isolated (Doisy).

13. Anterior pituitary hormone plays important role (biological tests).

4. Physiological aspects of retention cysts must be considered in surgical treatment.

5. Endometriosis has fairly definite clinical picture based on accurate physiological-pathological concept.

6. Removal of tumor or lessening of ovarian influence is necessary in treatment.

7. Ovarian tumors are made up of pseudomucinous cystadenoma (50%), papillary cystadenoma (20%), dermoid cysts (10%), carcinoma (10%), metastatic (5%), sarcoma (3%), benign (2%).

8. Bilateral tumors occur as follows: pseudomucinous cystadenoma (25%), sarcoma (35%), metastatic (50%), papillary cystadenoma (75%), also solid primary carcinoma (? %).

Influences question of what to do with other ovary.

9. No malignancy follows retention and parovarian cysts, few after dermoid pseudomucinous cystadenoma, endometriosis, more after papillary cystadenoma.

10. Transplants and ascites in both forms of neoplastic cysts; (may progress or regress) after removal of primary tumor.

11. Solid carcinoma and sarcoma occur in younger subjects.

12. Late metastases especially to bones may occur after removal of primary solid growths.

13. Sarcoma outlook varies with cell type.

14. Metastatic carcinoma may arise from above diaphragm as well as below.

15. Ovarian tumor should be suspected if pelvic masses are felt, the abdomen enlarges, ascites develops, or local and distant metastases occur.

Additional References: Magath, T.B., Proc. Staff. Meet. Mayo Clinic 6: 245-247 (April 22) 1931. (The Friedman Hormone Test for Pregnancy).

During pregnancy there is increase in hormone of anterior pituitary gland as well as ovarian hormone, and both appear in excess in urine. Original test (1928) was to inject urine from suspected case into white mice, twenty one days old, on two successive days, three times a day. One hundred hours later animals (usually five) were killed

and ovaries examined for corpora lutea and hemorrhagica. One thousand tests were done, accuracy 97.5%. Test is expensive. Friedman (1929) found rabbit does not ovulate until about 18 hours after copulation although ova ripen continuously. Urine of pregnant women caused ovulation within 24 hours. Technique: inject 5-12 cc. of urine intravenously into ear vein of non-pregnant rabbits. Use morning urine collected under as sterile conditions as practical. Examine ovaries after 24 to 36 hours. Presence of corpora lutea or hemorrhagica indicates pregnancy. Keep female rabbits in separate cages for three weeks before using for test. Material: 83 cases, 45 of which were not pregnant. One false positive due to recent copulation by rabbit. One false negative, one week later positive (early pregnancy). Test will show up in three weeks; four days post partum is negative. Test was negative with urine of pregnant mares, cows, hogs and dogs. Note: ovaries removed under aseptic precautions allows use of animal for other purposes. Also, Reinhart, H. L. and Scott, E., J.A.M.A. 96:1565-1567 (May 9) 1931, who report 150 examinations with 2 errors (82 negative, 68 positive). State test is positive in chorionepithelioma and hydatiform mole (according to literature). Modified technique: Inject 5 cc. of urine on two successive days; do post mortem at 48 hours or keep animal alive (open, look, close if no hemorrhage) next day do same thing. If still free - close and animal may be used for other purposes. Use any adult doe, over three months, weighing 4 pounds or more.

IV. CASE REPORT:

CARCINOMA OF OVARIES (OPERATION).

Menses

1887 - Began to menstruate at age of 15.

1888 - Married.

Pregnancy

1889 - Delivery of first child. Severe **tear**. Bled slightly continuously for a **year**. Became extremely weak and pale.

1902 - Backaches, headaches, and bearing down pains in pelvis.

Biopsy

1907 - Growth clipped from cervix. Felt well about a year.

1909 - Sharp pain in lower abdominal region several days. Relieved by heat. In bed two days.

Discharge

1910 - Serous vaginal discharge began between periods and especially for a week following menstruation. Foul odor.

Carcinoma?

1912 - Discharge became bloody at times and backaches became very severe. Menstrual flow decreasing in quantity (40 years of age). Burning urination and frequency especially when standing on feet. Entered University Hospitals. Has lost 10 lbs. Clinical diagnosis: Carcinoma of the uterus (?). No physical examination on chart.)

4-17-20 - Microscopic examination of biopsy of the cervix showed fibropapilloma with glandular hyperplasia. No evidence of malignancy.

Curetage

4-20-1912 - Operation - dilatation and curettment, bilateral trachelorrhaphy. Microscopic examination of curetting showed some glandular hyperplasia with no evidence of malignancy.

Menopause

1925 - Menopause. No bleeding since.

1926 - "Inflammation of pit of stomach. In bed 5 days.

1929 - Nocturia 1 to 2 times began.

Arthritis

5-?-1930 - Pain in left knee gradually spreading to almost all other joints except shoulder. Remained in bed from ten to eleven weeks. Constipation began becoming troublesome. Stools small and hard.

Gall bladder disease

9-?-1930 - Severe pain in epigastrium after eating. Caused her to double up or walk the floor. Associate with flatulence and belching. No nausea nor vomiting. Milk caused pain to develop. Bright blood in stools occasionally. Physician gave medicines which gave relief.

Lower Abdominal Pain

9-26-30 - Dull aching in lower abdomen accompanied by periodic twitching pain in both legs, dysuria, and nocturia.

3-20-31 - Consulted physician who advised gastro-intestinal study. Losing weight. Anorexia.

Examination

4-17-31 - Entered University Hospitals. Physical examination: Considerably emaciated white female, 58 years of age, apparently not acutely ill. Head and neck - Left pupil larger than right. Tenderness over left mastoid. Submaxillary adenopathy.

Pressure fluid?

Chest - Impaired resonance, increased breath sounds, moderately coarse rales, and increased vocal fremitus posteriorly at the base on the right side and high in the axilla. Heart - Moderate enlargement. Soft systolic murmur at apex. Blood pressure 165-86. Breasts - Many small nodules in the right breast and mass in the right axilla 2 x 3 cm. Abdomen - Distended.

Ascites

Fluid wave and shifting dullness present. Tenderness in right and left lower quadrants and over symphysis on deep pressure. Numerous subcutaneous nodules? in the right lower quadrant and lateral aspect of the left side. Extremities - unable to flex fingers, elbow and knee joints. Pitting edema over both tibias. Small, hard mass attached to right radius. Rectal examination - Fixed hard mass in culdesac. Hemorrhoids. Culdesac indurated and hard.

Pelvic examination -

Induration and tenderness postero-laterally to corpus. Organs seem bound together. Impressions: 1. Malignancy of stomach with metastasis. 2. Malignancy of colon and rectum. 3. Metastasis to pelvis, mesenteric nodes, bones, and bladder. 4. Arthritis. 5. Malignancy of kidney and urinary tract. 6. Cystitis. 7. Essential hypertension with cardiac decompensation. 8. Chronic arthritis. 9. Possible cord tumor.

Laboratory findings: Hemoglobin 62, rbc's 3,960,000, wbc's 8,000, P 80, L 17, M 2, E 1. Urine - numerous wbc's.

Proctoscope

4-19-31 - Proctoscope could be passed only 12 cm. due to obstruction which could not be visualized. Tumor of indeterminate size felt antero-lateral to rectum. Vaginal - Cystocele. Cervix pointed to left. No intrinsic pathology. Mass in culdesac.

X-ray

4-20-31 - Marked displacement of sigmoid upward and to right by mass in left lower quadrant of pelvis. No evidence of intrinsic pathology in the colon itself.

Paracentesis

4-21-31 - 5600 cc. brownish, turbid fluid removed by paracentesis with much relief. Large, round, tender mass about 10cm. in diameter in left lower quadrant. Fluid showed many wbc's, rbc's and a few large, granular endothelial cells. Pelvic examination - additional findings - Bilateral lacerations. Limited mobility. Corpus not definitely made out but apparently part of a firm, nodular mass filling culdesac. Is slightly movable. Impressions: 1. Myomata uteri. 2. Possible carcinoma of corpus. 3. Do not think this is metastasis from carcinoma of the intestinal tract. Advise: curettage.

4-24-31 - Gastro-intestinal study: No definite evidence of pathology in stomach or duodenum. However, due to examination in recumbent position results are not entirely satisfactory.

4-25-31 - Stool negative for blood.

4-26-31 - Stool negative for blood.

Growth

4-27-31 - Ascitic fluid culture shows a gram+ bacillus. (Probably contamination: PSP - 15 + 10 + 10 + 10 = 45%.

Fluid

4-28-31 - Still evidence of fluid in abdominal cavity. Tenderness over both lower quadrants. Irregular mass extends up to within three fingers of the umbilicus from the pelvis. External genitalia atrophied. Pelvic floor lacerated and relaxed. Prolapse of anterior vaginal wall. Speculum examination showed cervix senile type. Recto-vaginal examination - Cervix points down, is quite fixed, and seems low in pelvis. Corpus is not definitely palpable but is in-

involved with large masses on both sides which extend back to sacrum and into both lateral pelvic regions. More extensive on the left than right and definitely fixed on the left. Diagnosis: 1. Carcinoma of ovary. 2. Possible sarcoma of uterus. Advise: Accept transfer to tumor gynecology.

4-29-31 - Transferred to gynecology.

Operation

Under ethylene and ether abdomen was opened in the midline. Inspection revealed carcinoma of both ovaries, the right was 10 cm. in diameter and attached to uterus and pelvic wall by adhesions, and the left was about half this size and attached same way. When these were removed, two large masses, posterior to the uterus, are seen, approximately 8 and 10 cm. in diameter each. A small mass was found on the anterior surface of the uterus. When opened, the tumor masses are composed of cysts, solid areas, papillary ingrowths. All the masses were removed without much hemorrhage. The gall-bladder was enlarged and filled with stones. Tumor transplants are apparently present in the peritoneum around the liver. Sections show necrosis, infiltrating cords and masses of undifferentiated epithelium, partly formed glands, and stroma which varies from dense fibrous tissue to a very vascular structure.

Diagnosis:

1. Carcinoma of ovaries.
2. Metastasis to pelvis and peritoneum.
3. Chronic cholecystitis and lithiasis.

Comment:

This is the type of tumor which may have developed from a papillary cystadenoma. The future of the transplants is uncertain although regression is reported after primary removal. Patient made a fairly good postoperative recovery and still in the hospital.

V. ABSTRACT: CHIASMAL SYNDROMES

(Cont.)

1. Reference: Deery, E. M., Jour. Neur. and Ment. Dis. 71: 383-396, 1930.

2. General: Interpeduncular tumors

involve optic chiasm, have many signs in common, are exposed by right transfrontal osteoplastic approach, often show x-ray involvement of skull, (sella and increased pressure), interfere with visual fields, cause changes in optic nerve, present difficult diagnostic problems, often unsolved until operation.

3. Material: 225 operations (Deery) 55 excluded because for other causes, 22 meningiomas arising from olfactory groove, 170 remaining were: Pituitary adenomas (54), craniopharyngeal pouch cysts (47), suprasellar meningiomas (16), negative findings (15), gliomas of optic chiasm (14), chronic arachnoiditis (?) (13), third ventricle tumors (4), aneurism (3), cholesteatoma (2), sphenoidal ridge meningioma (1), angiomatous malformation (1).

4. Pituitary adenoma: Average age 58 years, few showed acromegaly, most had varying degrees of deficiency (hyper-pituitarism (7), hypopituitarism or transitional stages (43). Presented local signs chiefly, fields showed bitemporal hemianopsia (45), homonymous hemianopsia (5), none (4), primary optic atrophy (47), secondary (3), only choking (4), increased intracranial pressure (17), sellar enlargement (45). Incorrect diagnosis made in 18, (cyst 9, suprasellar meningioma 7, olfactory groove meningioma 1, third ventricle tumor 1). All proved to be adenoma at operation.

Note: Calcification occurs rarely in adenoma, commonly in craniopharyngeal pouch cysts. Age factor is not always safe although adenomas as rule occur in individuals in middle and late life. Young patients may have it (10 year old case). Cysts may also be found in older patients one in man 62 years old. Suprasellar meningiomas usually occur in middle age show normal sella, no pituitary dysfunction, primary optic atrophy, bitemporal hemianopsia. Mistake was made in olfactory meningiomas because they showed normal sella, anosmia and unciniate attacks, one eye blind, temporal defect in other, choked disk in one, primary optic atrophy in other with normal basal metabolism without mental symptoms (proved to be adenoma).

5. Craniopharyngeal pouch cysts (47)

due to rests of epithelium or obliterated hypophyseal duct, average age 21 although two patients were elderly. All showed failing vision, frontal headache (gradual dimness of vision), fair vision in one eye, poor in other (34). Bitemporal hemianopsia (14), blind in one eye, temporal hemianopsia, blind in other (11), with normal eye (4), homonymous (9), none (5). Primary optic atrophy (36), choked discs (8), normal (3). Pushing up from below separating nerve (41). Laboratory or clinical evidence of pituitary insufficiency (42), suprasellar calcification (72%) intracellular in one case only, deformity of sella (33). Preoperative diagnosis is correct in high percentage of cases. Incorrect diagnosis made in series, 12 out of 47. Note: X-ray evidence of calcification is very suggestive of this lesion, age and onset are also characteristic.

6. Negative group (15), average age 29, one half serious loss of vision, 10 abnormal fields, 11 abnormal sella, 7 faint calcification. What were they? One later proved to be third ventricle tumor.

7. Glioma of optic chiasm (14), average age 14 years, 12 thought to be cyst, all had headaches, failing vision, rapidly progressive loss in six months, (cysts were slower average 2 years). Diabetes insipidus in 3, all showed primary optic atrophy, and (3) choked discs. Generalized neurofibromatosis in 3, all showed temporal field defects, large sella 8, large optic foramina (anterior clinoid) in all. X-ray evidence of increased intracranial pressure in 5, frank hypopituitarism in 10.

8. Chronic arachnoiditis: (13) all postoperative diagnoses. Showed definite thickening and collection of fluid. Wassermann negative, average age 30 years. Chief complaints were failing vision and headaches, all appeared to be tumors, preoperative.

9. Third ventricle tumors: (4) no correct preoperative diagnosis. Average age 23, all showed failing vision and headaches, increased pressure and sellar change.

10. Aneurism: (3), ages 48, 40, and 58, failing vision, headaches, optic atrophy and bitemporal changes. All preoperative were diagnosed as meningioma.

11. Cholesteatoma: (2), incorrect diagnosis in both. Diagnoses were cysts and meningioma, ages 13 to 14 years. Bitemporal hemianopsia, optic atrophy. One showed homonymous hemianopsia.

12. Sphenoidal ridge meningioma: (1) age 47, failing vision, headache, primary optic atrophy. Correct diagnosis made.

13. Angiomatous malformation: (1) female age 26, failing vision, headaches, advanced primary optic atrophy, diabetes insipidus, and subnormal basal metabolism. Preoperative diagnosis: Third ventricle tumor. Found angiomatous malformation to right of chiasm.

14. Summary:

1. Chiasmal syndrome should be suspected when patients complain of failing vision, headaches, diabetes insipidus, and show in addition signs of pituitary dysfunction. All are approached by right transfrontal osteoplastic route.

2. Chief diagnostic findings are primary optic atrophy and bitemporal or homonymous hemianopsia.

3. Calcifications suggest craniopharyngeal pouch cysts (x-ray). Age factor is also important, e.g., pituitary tumors in advanced life, craniopharyngeal pouch cysts - negative group, glioma of optic chiasm, third ventricle tumors in younger persons.

4. Onset of failure of vision is also suggestive, very rapid in glioma of optic chiasm, slow in others.

5. Generalized neurofibromatosis suggestive finding in connection with glioma of optic chiasm.

6. Sellar changes may be found in all

7. Highest correct number of diagnoses should be made in suprasellar craniopharyngeal cysts on account of calcification. The group termed chronic arachnoiditis and negative were confusing

8. Temporal or bitemporal hemianopsia occur in 84% of pituitary adenomas, 89% showed primary atrophy of optic nerve.