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Case Reports

Richard E. Scammon

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I. CASE REPORTS

1. MULTIPLE HEMANGIOMATOSIS

R. W. Koucky

Case is white female, 71 years of age, admitted to University of Minnesota Hospitals 3-18-35, expired 4-26-35 (39 days).

Accident

11--33 - Fell out of car. Lame for short time, then up and about as usual.

Painful Hip

10--34 - Hip gradually became painful. Unable to walk.

Hoarse Bleeding

1--35 - Bleeding from throat. Had been hoarse for approximately 2 years prior to this. Following hemorrhage, increased difficulty in talking. From this time on until admission, continued to have pain in region of hip and some in knee. Hoarseness continued. Some streaking of blood in sputum from time to time. Losing weight. Usual weight 150 lbs., but at time of admission is 100 lbs.

Past History

At 30 years of age, had bronchitis and asthma for few months. About 1900, had tuberculous glands removed from neck and axilla.

Family History

Mother died at 78 of heart disease, father at 65 of heart failure. Two sisters died of carcinoma of uterus. One brother died of diphtheria, 4 brothers living and well. No history of bleeding in family.

Few months prior to admission to hospital had been East and was studied at a hospital there. Findings apparently identical with those recorded below.

Large, hard thyroid: painful tumor of hip

3-18-35 - Admitted. Physical examination: Thyroid - hard, enlarged, not movable, no regional adenopathy. Marked tenderness over lumbar spine. Swelling over outer surface of left ilium. Hip swollen. Very sensitive to pain and cries out in anticipation of pain on

examination. Laboratory: Urine - negative. Blood - Hemoglobin 50%, red blood cells 3,000,000, white blood cells 5,450, polymorphonuclears 64%, lymphocytes 31%, mononuclears 2%, eosinophils 1%, basophils 2%. Blood Wassermann - negative.

X-ray

Multiple osteoclastic carcinomatous metastases of lumbar spine and pelvis, enlarged substernal thyroid, and calcified tuberculosis in left upper lobe of lung.

4-10-35 - Slowly failing. Marked dependent edema. Left leg larger than right.

Fever. Fecal impaction

4-25-35 - Slight irregular fever throughout illness. Failing rapidly. Fecal impaction removed from time to time.

4-26-35 - Expired.

Autopsy

Body is poorly nourished, white female, 71 years of age, measuring about 163 cm. in length and weighing approximately 90 lbs. Rigor not present. Hypostasis purplish and posterior. Edema of back and legs, most marked on right side. No cyanosis. Pupils equal. Definite fullness in left hip region. No telangiectasia or skin hemangiomata.

Peritoneal cavity smooth and glistening throughout. Appendix hangs free.

Each pleural cavity contains about 1000 cc. of fluid. Pericardial sac shows an excessive amount of fluid.

Heart weighs 250 grams. No hypertrophy or dilation. Endocardium is smooth. Valves are well formed. Muscle shows no fibrosis or softening. Root of aorta shows slight degree of arteriosclerosis. Coronaries soft throughout. Few atheromatous plaques present which appear to be of no significance.

Lung Abscess

Right lung weighs 500 grams, left 375. Some adhesions in both apices. Both lungs somewhat emphysematous. Left lower lobe about 50% collapsed and contains few

apical scars (old), probably from tuberculosis. Calcified nodes in hilum of right lung. In lower portion of upper lobe on right, there is a multilocular abscess, containing about 2 cc. of thick, gray, foul-smelling pus. Apparently, this abscess is not in communication with a bronchus.

Spleen weighs 110 grams, has a normal appearance. No hemangiomas visible.

Multiple Hemangiomas - benign type

Liver weighs 1100 grams. Entire outer surface speckled with purplish discolored areas. Many of these are raised above the surface of liver for a height of about 1 cm. Larger ones appear like blisters or blebs under the serosa. They are fluctuant, have a spherical or slightly lobulated outline, the largest measuring 4 cm. in length and 3 cm. in breadth. When ruptured, they exude blood. Others are tiny vesicles, and still others are small telangiectasia under the serosa. From 100 to 150 are visible on the external surface of the liver. On cross section, the liver is riddled throughout with cavernous hemangiomatous spaces, largest again measuring up to 4 cm. in diameter. They are generally spherical with a tendency to be lobulated. Liver tissue in between hemangiomas shows no significant change. On each cut surface, these hemangiomas are present, being quite evenly distributed and roughly they would average about 2 cm. apart.

Gall-Bladder mucosa is smooth. No stones.

Fecal Impaction - Ulcers of Rectum

Gastro-Intestinal tract: Multiple petechial hemorrhages in mucosa of stomach. Small bowel and colon show no change. No hemangiomas found. Rectum shows three serpiginous ulcers, each about 1.5 cm. in diameter. Entire transverse colon and upper part of descending colon is filled with very hard fecal masses. Lower sigmoid and rectum are filled with liquified feces.

Pancreas is soft. No tumors, cysts or hemangiomas.

Adrenals are well developed. No lesions.

Cysts of Kidney; Hemangioma

Each kidney weighs 100 grams. Small cyst in convex surface of right kidney, approximately 1 cm. in diameter, filled with bloody fluid. Cortices and pyramids of left kidney show no change. In lower portion of right kidney pelvis, there is a small hemangioma, 0.75 cm. in diameter. Ureters are normal.

Diverticula of Bladder - Telangiectasis

Bladder is mushroom shaped, appears bilobed. Appearance given to bladder by two large diverticulae in fundus which are symmetrically placed and have a large opening into bladder proper. Entire mucosa of bladder and diverticulae covered with multiple telangiectasias which in a few areas form congregate hemorrhagic areas up to 1 cm. in diameter.

Stricture of Cervix; Polypi of Endometrium

Genital organs: Both ovaries are replaced by multiple follicular cysts, largest being about 3 cm. in diameter and others range generally less than 1 cm. Tubes show no change. Uterus is approximately normal in size. External os is not visible. Probes cannot be passed into the uterus. When the cervix is cut open, there appears to be a complete stricture of the external os. The internal os is open. The cavity of the uterus is not very large. There are two polypoid masses hanging from the fundus of the uterus which are bloody and apparently ulcerated.

Aorta is moderately arteriosclerotic.

Hemangiomas of pelvis, spine

Bone: Ribs and sternum, lower vertebrae and pelvic bones are examined. All bones are soft. Apparently, a great deal of decalcification has taken place. No hemangiomas found in ribs, either by direct inspection or by transillumination. All vertebrae are soft, particularly lumbar group. Bodies of these vertebrae when removed are shown to be made up of large cavernous spaces filled with blood. Bones can be crumbled with hand because of extreme thinness of bone. Projecting into false pelvis from inner surface of left ilium, there is a diffuse swelling which bulges up beneath the iliopsoas muscle. Tumor proper is well encapsulated,

has a capsule 1 to 2 mm. in thickness, is smooth. There are no secondary nodules on the surface. When it is incised, about 200 to 300 cc. of fluid and clotted blood escapes. Anterior and middle two-thirds of crest of ilium apparently has been completely eroded. Finger can be passed into cavity of ilium and this cavity is made up of very fine, thin spicules of bone which can be broken down with the finger. Finger dissection can be carried on into the bone to the crest of the ilium, downward to the obturator space into the superior ramus of the pubis, and toward the tuberosity of the ischium. Tumor extends backward toward articulation to about half-way on bone. Femorae are not exposed.

Adenoma (?) of thyroid.

Neck: Thyroid weighs 110 grams. Enlargement consists of single large adenoma located in isthmus of gland. Adenoma is calcified on anterior surface. Remainder of adenoma is made up of gelatinous, calcareous, degenerated thyroid tissue. Two lobes on each side can be identified, are separate from adenoma, and show no significant changes. No evidence (grossly) of malignancy with thyroid.

Telangiectasis of Choroid

Head: Calvarium shows a few thinned out areas, apparently anatomical variations and not tumors. Base of skull shows no change. Meninges are smooth and glistening throughout. No hemangiomas. Cut surface of brain shows no change. Cerebellum is particularly examined for presence of cysts but none are present. Choroid plexus on both sides shows several telangiectasia, each about 3 to 4 mm. in diameter.

Diagnosis

1. Hemangiomas of liver, pelvis, vertebra, femora, kidney pelvis, bladder and choroids.
2. Pleural effusion.
3. Lung abscess.
4. Old, healed tuberculosis.
5. Fecal impaction.
6. Ulceration of rectum.
7. Ovarian cyst.
8. Diverticulae of bladder.
9. Thyroid adenoma.

Microscopic:

Pelvic tumor disintegrated by hemorrhage. All other tumors benign hemangiomas. Thyroid adenoma is a large hemangioma.

2. CHORIOEPITHELIOMA OF UTERUS

R. W. Koucky

Case is white female, 44 years of age, admitted to University of Minnesota Hospitals 8-2-35 and expired 8-9-35 (7 days).

Weakness, lower abdominal pain, frequency

1-1-35 - Did not feel well. Became weak. Slight right lower abdominal quadrant pain. Urinary frequency noted.

Vaginal Bleeding

7-1-35 (about) - Vaginal tumors appeared. Vulva involved. Vaginal bleeding more marked. In a hospital for about two and one-half weeks. No procedures carried out. (Working diagnosis not stated.)

Admitted. Anemia, Pelvic Tumors

8-2-35 - Transferred to University of Minnesota Hospitals. Past history: Has had four children, the youngest 6 years of age. No history of abortion. Physical examination: Difficult to examine because of extreme weakness. Rales and bronchial noises over entire chest. Heart rapid, blood pressure 80/50, faint systolic murmur present over apex. Mass in abdomen which is difficult to palpate, apparently rises up as high as umbilicus.

Laboratory: Blood - Hemoglobin 35%, white blood cells 11,600, red blood cells 1,750,000, polymorphonuclears 93%.

Gynecological examination: Tumor masses in both labia majora. Ulcerating cavity involving cervix and posterior vaginal wall. Further pelvic examination impossible because of bleeding.

Diffuse Chest Densities

X-ray of chest - shows diffuse densities present throughout both lungs from the

apex to base of a very mottled character. This suggests most strongly an acute military tuberculosis with marked pulmonary congestion. The possibility of this being disseminated tuberculosis or very atypical capillary bronchopneumonia must be considered.

Medical Consultation

Chest shows generalized fine crepitant rales, bronchovesicular breathing. This suggests a generalized involvement like a disseminated tuberculosis. Carcinomatosis cannot be ruled out.

Biopsy of Cervix

Attempted. Small piece of tissue obtained. Bled profusely. Surgical shock. Given intravenous fluids and transfusion.

Microscopic Section of tissue shows a mass of necrotic material and foci of plump decidua-like cells. Conclusion: decidua.

8-5-35 - Transferred to Medical Service as possible military tuberculosis with carcinoma of cervix. Extremely weak, pale and dyspneic. Pulse 124. Skin cold and clammy. Too ill to examine carefully. Entire chest shows numerous rales.

8-7-35 - Profuse hemorrhage from vagina. Vagina packed.

8-8-35 - Packing removed. Within a few minutes, another hemorrhage, about 300 cc. Repacked.

8-9-35 - Expired.

Autopsy

Body is well developed, fairly well nourished, white female, 44 years of age, measuring about 166 cm. in length and weighing approximately 120 lbs. Rigor is present. Hypostasis is purplish and posterior. No edema or cyanosis. Pupils are equal. No special marks about body except for extreme pallor.

Peritoneal cavity is smooth and glistening; no excess fluid; no adhesions. Appendix hangs free.

Pleural cavities contain about 150 cc. of blood-tinged fluid on both sides. No

adhesions. Normal Pericardial Sac.

Heart weighs 215 grams. Musculature is firm and of good color. Endocardium and valves are smooth. Coronaries show no atheromata. Root of the aorta is smooth.

Multiple Lung Tumors

Right lung weighs 700 grams, left 650. There is a diffuse infiltration with tumors throughout both lungs from apex to base. In right apex, tumors form a confluent mass about 5 cm. in diameter. In several other portions of both right and left lungs, masses become aggregated into areas having a total diameter of 3 to 4 cm. Otherwise, tumors are discrete, usually averaging 7 to 10 mm. in diameter. All tumors have a red hemorrhagic appearance so that the small ones are hidden against the red color of the lung and must be palpated in order to reveal their presence. Larger tumor masses have a grayish outline with same hemorrhagic appearance throughout the remainder. Lymph nodes at hilus of lung are not involved. No caseation and no tendency to break down.

Spleen weighs 150 grams and shows no change.

Liver weighs 1330 grams, is pale, fatty and soft and otherwise shows no change. No tumors, abscesses or hemangiomas.

Gall-bladder is thin. Smooth mucosa. No stones.

Gastro-intestinal tract shows no change. No ulcers or polyps. No tumors or diverticulae.

Pancreas is soft and shows no cysts, pancreatitis or tumors.

Adrenals are well developed on both sides. No adenomata.

Hydronephrosis

Right kidney weighs 180 grams, left 150. Both kidneys are very pale. Cortex and pyramids are well demarcated. On right side, there is a moderately advanced hydronephrosis and dilation of the

pelvis, calices and ureter. Ureter has a diameter of about 1.5 cm.

Bladder proper shows no significant change. Pale mucosa. No tumors or cystitis.

Vascular, placental-like tumors.

Genital Organs: Uterus is large, measures 19 cm. in vertical direction from fundus to cervix. Upper one-half of body of uterus is replaced by a large, soft, red, placental-like, vascular tumor. This replaces the entire musculature of the uterus and projects on the outer surface as dark cystic nodular projections. Broad ligaments of tube and ovary are not involved and show no change. Lower half of uterus presents grossly a normal appearance except that on the posterior surface there is an implant in the mucosa which has a diffuse outline and again is hemorrhagic in appearance. Cervix and vaginal wall otherwise show no implantation of tumor. In tissue between anterior vaginal wall, base of bladder and urethra, and displacing pelvic floor structures, there is a large hemorrhagic mass which has a thickness of about 4 cm. and extends the full width of the pelvic floor. This mass projects out into the anterior vaginal wall but as far as can be determined, it does not directly penetrate through it. Introitus and vulvae are not examined.

There is no appreciable enlargement of lymph nodes, either in obturator region, iliac, aorta or mediastinal areas.

Head: Scalp, calvarium, dura and meninges show no change. Fluid is clear. Brain shows no change. Sections in very thin segments show no tumor implants. Blood vessels in several areas are congested. Vesicles and choroids show no change.

Diagnosis

1. Chorioepithelioma of uterus.
2. Implantation into pelvic floor.
3. Metastases to lungs.
4. Hydronephrosis.
5. Fatty metamorphosis of liver.

II. ABSTRACTS

1. HEMANGIOMATA

Bull. of Staff Meeting,
4-5-34, p. 261. R.W.Koucky.

1. Hemangiomas are much more complicated than one may realize. Apparently no organ or area in the body is exempt from involvement. Not infrequently is death directly due to tumor.

2. Classification of various types is not satisfactory. The various forms of lesions may be divided into 3 groups: (1) symptomatic, consisting of the secondary angiomas and the various forms of arteriovenous aneurysm; (2) malformations, i.e., primary angiomas, venous angioma, arterial angioma and arteriovenous angioma; and (3) neoplastic or angioblastic types of tumors.

3. Secondary angiomas are associated with some other disease, such as jaundice, pregnancy, blood dyscrasia, syphilis, thyroid or pituitary dysfunction, cardiovascular disease, lead poisoning, inflammatory disease producing perivascular fibrosis and sepsis. The lesions may be discrete, localized or there may be a generalized process over the entire body. The lesions subside when the patient recovers from his primary condition. Treatment of the lesion, therefore, is unnecessary.

4. Primary angiomas or telangiectasis consists of a dilation of the capillaries. The endothelium shows no proliferation and the adjacent extravascular tissue usually is normal. The lesions may be single, multiple, diffuse and present in any tissue or area of the body.

5. Dilation of the larger vessels is said to be of 3 types: arterial, venous and arteriovenous. The divisions are not altogether convincing. Two types are quite definite, i.e., the venous and arteriovenous. In general, the lesion consists of a "tangled mass of blood vessels" with numerous communications of the

venous and arterial channels. The central mass of blood vessels is extremely irregular. Study of the structure of the wall shows irregular and malformed muscles, elastic tissue and collagenous material. The differentiation into veins and arteries on the basis of histological appearance does not appear convincing. Frequently secondary changes occur in the central mass of blood vessels, such as calcification and thrombosis.

6. Communications to the arterial and venous systems are multiple. The veins leaving the mass show extensive changes, such as dilation and saculation. Changes in the veins are dependent upon the arterial force and the amount of intervening angiomatous channel. When the size of the arterial openings are relatively large and the intervening mass of vessels small, the venous changes are most marked. The extreme form is seen in the artificial arteriovenous fistulae.

7. The arteries leading up to the malformation also suffer. The vessels become dilated, elongated and tortuous. Again the greatest changes are seen when the arteriovenous channels are widest and there are only a few intervening channels.

8. In the cases of brain angiomata, the tumor masses can be observed at operation without surrounding tissue obstructing the view. In these cases, 2 types of tumors are present; those which are dark and appear like masses of veins and those in which the growth is pulsating and arterial blood can be seen inside the vessels.

9. The central tangled mass of blood vessels usually does not manifest any invasive power. It is diffuse and compresses the adjacent structures. The intervening tissue is usually the substance of the organ in which the mass is imbedded.

10. Boundaries between the mass and normal tissue are usually poorly outlined. Of 142 muscular angiomata, 96 were diffuse, 34 were sharply demarcated, and 12 were partially encapsulated.

11. The masses enlarge as they become

older. In a group of muscular angiomata, the nerves, subcutaneous tissue, periosteum, bone, synovial cavities, arteries, skin and veins may become secondarily incorporated within the mass.

12. It is said that the heart undergoes secondary hypertrophy whenever the arteriovenous channels are of large size and of long duration: (1) the shunt produces an anemia of certain parts with a reflex increase of minute volume resulting in hypertrophy; (2) over-work.

13. The genesis of this group of malformations is not clearly understood. The minority believe that they represent a neoplastic growth of blood vessels. A greater number of authors feel that the masses are congenital malformations.

14. Some of the lesions are present at birth and sometimes obstruct labor. In one group of 142 cases, 82 were said to be present at birth. In a group of 256 cases, 95 came on during the first decade, 67 during the second, 30 during the third and only 14 during the remaining decades.

15. From the embryological standpoint, it appears that the central mass of blood vessels is the result of a misplaced embryonic vascular bud. Various communications with the veins and arteries are established either during embryonic life or at a subsequent time and even after the tumor is developed new openings may be formed and these changes produce fluctuation in size and therefore also in the symptoms.

16. The angioblastic or neoplastic form of hemangioma is mixed group. It includes cysts of a hemangiomatous origin and also the various forms of cavernous or solid hemangiomata showing either proliferation, metastasis or tendency to invade and recur. (Hemangi endotheliomata).

17. The hemangiomatous cysts are characteristically found in the cerebellum but it is suggested that some of the cysts of the liver, pancreas and kidney associated with the cerebellar tumor are of the same nature.

18. The cysts are small, have a thin wall and contain a xanthochromatic fluid. The typical and identifying character of the cysts is a small nodule on the inner surface which is made up of small blood vessels or an endothelial mass. These cysts form about 6% of the various cysts found in the cerebellum.

19. The other variety of angioblastic tumor shows a histological character of blood vessels in which the epithelium is rapidly growing, either producing solid masses or infiltrating the adjacent tissue and in some cases even producing metastases. The true nature of these metastases is questioned. It is suggested that the distant lesions are other primary tumors.

20. In 3,000 breast tumors, 9 were found to be angiomas and one of these was malignant. The clinical diagnosis is difficult to make before operation.

21. Only 2 cases in the esophagus are reported, one being malignant.

22. Two interesting cases are reported involving the maxilla. One of these had a tooth extracted because of persistent bleeding. Following the extraction, the patient expired in spite of various radical procedures to stop the bleeding.

23. Thirteen cases have been reported involving the spleen. Some of these died suddenly following spontaneous rupture.

24. In 217 laryngeal tumors, 3 were hemangiomas. In 1921, 65 cases were found in the literature. It is said that in the adult the angiomas are usually pedunculated and above the cords, whereas in infants they are sessile and below the cords.

25. Fifty-two cases of angiomas have been reported involving the uterus. Sudden extreme hemorrhage is a common symptom.

26. Twenty-nine cases involving the vertebra have been reported; although from anatomical studies of the spine, it is said that as many as 10% of 10,000

cases show some evidence of involvement. Possibly these represent ectasias of vessels due to osteoporosis of the bone. Involvement of the vertebra may be very extensive without producing compression. The roentgenographic features are described as parallel, vertical trabeculae of increased density in the bodies of the vertebra. In this group of cases, only 11 showed cord compression.

27. Hemangiomas involving the cord are not common. In 1915, there were 7 cases on record but it is said that several cases have been reported since. They may be intramedullary, intradural or extradural. Here, as also in cases of brain tumors, cutaneous hemangiomas have been observed in the same segment.

28. One author collected 14 cases of the lesion involving the colon. Any part may be involved. Symptoms consist of melena over a long period of time, often beginning in early life and frequently showing sudden severe hemorrhages. Some of these hemorrhages have been fatal. One case of hemangioma of the sigmoid is reported which was markedly improved following the injection of 1 cc. of 40% sodium salicylate solution into the vein exposed at laparotomy.

29. Sixteen cases of bladder hemangioma and 17 cases of the same type of lesion involving the kidney have been reported. Hematuria is often present since birth and is repeated time and again. One author points out that many of the so-called essential hematuria probably are due to telangiectasis in the urinary tract and he suggests that search be made for other hemangiomas in exposed parts of the body, such as the nose and skin.

30. A large group of the tumors involving muscle have been collected. In a total of 256 cases reported, 84 of these involved the trunk, 64 the upper extremity, 107 the lower extremity. It is interesting to note that in this group, 19 out of 35 showed some calcification in the tumor on the x-ray film. Results of treatment of this group show that 198 recovered, 15 had recurrences and 3 necessitated amputation. Radium

was used only once in this group. These tumors in the extremities may be studied by x-ray after injection of opaque substances.

31. An enormous literature has accumulated on the various forms of hemangiomas of the brain. Signs and symptoms which are said to be of value in making the preoperative diagnosis are as follows: epilepsy, paralysis progressing after each attack of epilepsy, slow course, familial history, cutaneous hemangiomata, bruit over the skull and tortuous carotid vessels. In addition, x-ray of the skull may show a peculiar wavy, doubly contoured line within the tumor which apparently are due to calcium deposits in the walls of the tangled mass of blood vessels.

32. In case of hemangiomatous cysts of the cerebellum, the preoperative diagnosis is difficult to make. One of the most important diagnostic signs is the presence of angiomas in the retina. In addition, the history of a familial disease, onset of symptoms in early life with a slow course may be of value. In one group of 6 cases, only 1 showed the angioma in the retina. Cutaneous lesions are rarely found in this form. Average age in which the patient presented themselves for examinations was 34 years in one series. The peculiar association of cerebellar cysts, retinal angiomas, cysts of the pancreas, liver, kidneys and frequently with bilateral nephroma has been designated as the Hippel-Lindau syndrome or disease.

33. In the bone sarcoma Registry, there have been (1931) 15 angiomatous tumors presented. Of these 2 were doubtful, 7 were classified as angiomas and 6 as "hemangioendotheliomata."

34. In the American literature only one case of hemangioendothelioma of the thyroid has been reported. In European literature (1931) there were 41 cases. Some of these angiomatous masses may be degenerations in thyroid adenomata.

35. With the exception of the tumors in the brain, very little discussion of treatment was found in the material

reviewed. Several authors, however, point out that the large and diffuse hemangiomas are dangerous to attack surgically. Bleeding may be furious even from a biopsy incision. Apparently, radiation is the favored method of treatment.

36. In case of brain tumors, the venous or arterial angiomas of the cerebrum when found at operation are best left alone and treated subsequently by radiation. One author advises tying off the arteries.

37. In case of the cerebellar cyst, surgical removal is advised; particularly excision of the small nodule of blood vessels which is secreting the fluid is necessary or otherwise the cysts recur.

38. Of particular interest are the cases reported in the various papers reviewed, or persistent, obscure bleeding, such as hematuria, melena or nose-bleed due to a hidden hemangioma. Of interest also are the cases showing sudden profuse hemorrhage into the body cavities or to the exterior, some of which have proven fatal.

2. CHORIONEPITHELIOMA

Bull. of Staff Meeting,
Vol. V, No. 27, 6-7-34, p.355.

R. Schwegler.

1. Histology of the tumor was first described in 1892 by Sanger. At this time it was called a sarcoma. The present name of the tumor was given to it in 1898.

2. Chorionepithelioma is very rare. In 1919, 571 cases were collected from the literature. In 76,000 pregnancies, there were 80 moles and 6 chorionepitheliomas. This is an incidence of one chorionepithelioma in 12,813 pregnancies and one tumor in 13.3 moles. The incidence of chorionepithelioma in hydatiform mole is said to be less than 5%.

3. About 99% of the tumors follow

pregnancy and the other 1% has a doubtful history.

The character of the previous pregnancy in 455 cases was hydatiform mole 45%, abortion 30%, labor at term 21%, ectopic pregnancy 2.5%. The relatively high percentage of unsuspected moles in cases of abortion suggest that the apparent origin from abortion may actually have a mole as the basis.

4. In one series of 90 tumors, the average number of pregnancies was 4.2. The percentage of the tumors following the first pregnancy is about 5%, following the second about 15%, after third or fourth 28%, and above fifth 38%. This percentage is approximately the same in other groups reported.

Average age of incidence is 33 years which is the average age of child-bearing. Only a few cases have been reported above 50 years or under 20. This seems to follow approximately the child-bearing age of distribution.

5. Tumor may occur synchronously with pregnancy or follow after an interval of 31 years. Probably the unusually long periods of latency are erroneous and the tumor is on the basis of an unknown abortion. Latent periods over 3 years are uncommon. The tumors have been found at the time of evacuating the moles.

6. The tumor is almost always located in the uterine wall but ectopic locations have been reported. There have been 22 cases of tumor in pregnant tubes and rare tumors have been reported in the vaginal wall, non-pregnant tubes, broad ligaments, retroperitoneal tissue, kidneys and in teratomas.

7. Uterus is almost always large. The tumor is present either in the cavity or in the wall or scattered throughout. Perforation sometimes occurs. Hemorrhage, suppuration and necrosis within the mass is common. Histologically, the tumor is composed of an overgrowth of the Langhan's cells, syncytium and connective tissue. The Langhan cells occur in masses or plates. The presence of these

masses of cells in the absence of villi is characteristic of the tumor. There are no clear-cut divisions into tumor types. The chorionadenoma and chorioncarcinoma and a syncytioma have been described. The distinction is on the basis of proportion of syncytium and stroma.

8. Metastases are distributed by the blood. The invasion of the tumor into the blood sinuses of the uterus is very common and characteristic. The sites of predilection are lung, vagina, liver and vulva.

9. The changes in the glands of internal secretion are of interest. In the ovary, there are multiple (often bilateral) corpus luteal cysts. The incidence of these cysts is about 10% in chorionepitheliomas, about 60% in hydatiform mole. Probably more careful section of ovaries would show a higher incidence of these luteal changes. Spontaneous regression takes place on removal of the tumor. In the pituitary, changes similar to those in pregnancy take place.

10. The diagnosis on physical examination can be only made late in the course. Hemorrhage at any time following hydatiform mole or persistent hemorrhage following abortion is suspicious. Metastatic nodules in the vaginal wall are pathognomonic. For early diagnosis, uterine exploration is essential. One author recommends abdominal hysterotomy in these instances. Trophoblastic tissue without villi occurring shortly after some form of pregnancy is the usual criteria for histological diagnosis. In the presence of villi, the diagnosis is in doubt.

11. Incomplete infected abortion, degenerating myomas, sarcomas and fundal carcinomas may simulate chorionepithelioma.

12. Hormone tests are of great value. The number of mouse units in normal pregnant urine is about 5, in hydatiform about 100, and in chorionepithelioma as much as 70 M.U. may be found. Apparently there is some correlation between size of the tumor and concentration of hormone.

The Freedman test should be negative about 2 weeks after a normal pregnancy and about 8 weeks after expulsion of a mole. Increasing concentration of the hormone after these intervals practically establishes the diagnosis of chorionepithelioma.

13. Spontaneous recovery or recovery after incomplete removal has been occasionally reported. In a group of 100 cases, 37% died and of the 63% living, 32% were well 6 months, 24% one year, and 13% from two or more years.

14. It is considered that panhysterectomy is the treatment of choice as soon as the diagnosis can be established. The use of small doses of irradiation in suspected cases is depreciated because local danger signals are hidden. The use of radiation in full doses as therapy is considered to be promising but statistics are still limited due to the few cases reported.

III. MOVIE

Marine Mysteries

A Story of undersea life.

IV. TODAY

is meeting #201 in the present series, the beginning of the seventh year of this form of staff meeting. The program will be similar to last year's pending suggestions from the group. As in the past, the Citizens Aid Society, a group of public spirited Minneapolis citizens, will sponsor the publication of the bulletin through the Cancer Educational Fund. Lunch will be served from 11:45 to 12:15. Meetings will start promptly at 12:15 and recess at 1:15. We are again trying movies as the opening number on the program.

This year differs from other years in one main respect. We now have the assurance of assistance in preparing the programs from a larger number of staffmen than ever before. We hope that

the day will arrive when every meeting will be sponsored by some staff member. It is your meeting as we only represent the medium of expression of your ideas and ideals.

It is to be remembered that approved hospitals are required to have general staff meetings. "The program should consist of: (1) selected cases containing object lessons in improvement of technique of diagnosis or therapy; (2) group studies of various common diseases and injuries with special reference to end-results; (3) discussion of special reports from various clinical and scientific departments; (4) discussion of ways and means of elevating scientific efficiency of hospital staff."

Without good discussion, the meetings become lifeless. We will attempt this year, as in the past, to notify everyone whose interest lies in the field to be discussed. As you may well realize, it is rather difficult to do this in every case. For this reason, we expect everyone who has anything to offer to please do so. Questions are also solicited.

We thank you for your cooperation in the past and earnestly request it for the future.

V. HAROLD SHELLY DIEHL

succeeds Richard Everingham Scammon as Dean of Medical Sciences September 1, 1935. The above news item is rather well-known by this time. In a previous issue of the Bulletin, the new Professor Extraordinary's story was related to you. Today we present Harold Diehl, born in Nittamy, Pennsylvania; attended prep school in York Collegiate Institute. Received his B.A. degree from Gettysburg College in 1912 and was honored with a Doctor of Science degree from his Alma Mater in 1935. He attended Syracuse University and later the University of Minnesota, where he received, among others, his M.D. degree.

His teaching career started in Fulton, N. Y. in 1912 when he was

assistant principal and teacher of mathematics in the high school. At one time, he was chemistry instructor at Augsburg Seminary (Minneapolis). He joined the department of bacteriology and pathology in 1914, later becoming pathologist of the University of Minnesota Hospitals.

In 1918, he went into military service, serving as intern and physician at Base Hospital 26, France. At this time, his interest in public health became more obvious and we find him directing the northern division of the American Red Cross Commission to Poland.

Upon his return to the University, he was placed in charge of the department of preventive medicine and public health and the Health Service. The rapid development of these two units is to be credited to the vision and executive ability of Dr. Diehl. He has been active in many organizations within his field and has acquired many honors as the result of his energetic leadership.

His selection for the position of Dean of Medical Sciences is a very natural one. He has demonstrated beyond any question of doubt that he is an able, sound, scientific leader and executive. The immediate reaction to his appointment is indicative of the support which he is going to receive. The staff salutes him for his record in the past and looks forward to even greater accomplishments in the future.

VI. INTERNES

1934-35. GREETINGS!

Adams, Carolyn Gaston - Washington, D.C.
B. A. - Barnard College '30
College of Phys. and Surg. '34
M. D. - Columbia '34
Univ. of Minn. 1934-35

Pediatrics

Buirge, Raymond E. - Waterloo, Iowa.
Duke University '31
University of Minnesota Obstetric Internship.

Surgery

Concklin, Charles Lewis - Hibbing, Minn.
M. D. - University of Wisconsin '33.

Pediatrics

Craft, Charles Brigman - Mobile, Ala.
B. S. - Tulane University '32
M. D. - Tulane University '35

Surgery

Dennis, Clarence - St. Paul, Minn.
B. S. - Harvard '31
M. D. - Johns Hopkins Medical School '35
Sub-Intern - Johns Hopkins.

Surgery

Doss, A Keller - New Orleans, La.
M. D. - Tulane, '34
City Hospital, Baltimore, M.D.
'34

Medicine

Ellinger, George Frederick - Mount Vernon, Washington
B. A. - U. of Minn. '31
B. M. - U. of Minn. '34
Jr. Internship N.P.B.A. '32
Jr. Internship, Glendive, Mont.
'33

Pediatrics

Gariepy, Bernard - Detroit, Michigan
B. S. & M. D. University of Michigan
1 year internship - Providence Hospital, Detroit, Michigan.

Surgery

Harrison, Harlon W. - New York Mills, N.Y.
M.D. - University of Rochester '34.
Research Fellow in Radiology,
Strong Memorial Hospital, 1931-31
Resident Pathologist, General Hospital, State U. of Iowa,
1934-35

Surgery

Iverson, Eleanor - Moorhead, Minn.
B. A. - Concordia College '30
B. M. - Univ. of Minn. '34
Univ. of Minn. '34

Obstetrics

Lockhart, William E. - Canjon, Texas
M. D. - University of Texas '34
City Hospital, Cleveland;
Internship.

Medicine

Karlstrom, Arthur E. - Minneapolis, Minn.
 M. D. - Univ. of Minn. '35
Pediatrics

Mattison, Robert E. - Minneapolis, Minn.
 B. S. - Univ. of Minn. '35
 M. B. - Univ. of Minn. '35
Medicine

McElmeel, Eugene F. - St. Paul, Minn.
 B. A. - Univ. of Minn. '30
 B. S. - 1932
 M. B. - 1934
Medicine

Olson, Stuart A. - Stanley, Wisconsin
 B. S. - Univ. of Minn. '32
 M. B. - Univ. of Minn. '34
 Univ. of Minn. '34
Surgery

Paulson, Donald L. - St. Paul, Minn.
 B. S. - Univ. of Minn. 1935
 M. B. - Univ. of Minn. 1935
 Minneapolis General Hospital
Medicine

Platou, Ralph - Valley City, N. D.
 M. B. - Univ. of Minn. 1934
Pediatrics

Reeves, George W. - Washington, D.C.
 M. D. - George Washington Univ. '34
 Gallinger Municipal Hospital
Medicine

Schade, Frederick L. - St. Paul, Minn.
 B. A. - Univ. of Minn. '25
 B. S. - Univ. of Minn. '31
 B. M. - Univ. of Minn. '34
 Univ. of Minn. - Medicine
 M. D. Univ. of Minn. '35
Surgery

Schroepfel, John E. - Minneapolis, Minn.
 B. S. - Univ. of Minn. '34
Surgery

Wright, Robert - Brisbane, Queensland,
 Australia.
 L. D. S. - Queensland College of
 Dentistry, '32
 D. D. S. - Univ. of Minn. '34
Dentistry

Stransky, Theodore - Owatonna, Minn.
 B. S. - Univ. of Minn. '31
 M. D. - Univ. of Minn. '32
 Minneapolis General Hospital
 St. Mary's Hospital
Medicine