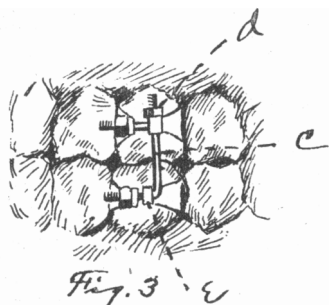


the fragments and the opposing upper jaw are not toothless.

There are no sequelæ as a direct result of treatment, as often follow wiring; abscesses of tissue, loosened teeth and loosened alveolar process.

In fixing opposing molars or bicuspid, Dr. Angle makes use of a rod (Fig. 3, c), one end of which is bent to a right angle; this is hooked into an attachment on one band (Fig. 3, e). The other end of rod is thrust through a pipe in other band. The rod is held and its length adjusted by a nut (Fig. 3, d)



This rod can be much more easily adjusted in this region than silk or wire, the cheek being in the way.

The articulation of the teeth differs widely in different individuals. The upper cusps and incisors usually project slightly over the lower ones; occasionally the cusps and incisors of lower jaw project farther in front than the upper ones; owing to this diversity in articulation of these teeth, silk floss, well waxed, can better hold them in proper place than the rod or any less flexible material.

264 S. Halsted Street.

MALIGNANT DISEASE OF THE OVARY; REPORT OF CASES.

Read before the Worcester, Mass., Medical Association, Oct. 10, 1894.

BY HOMER GAGE, A.M. M.D.

WORCESTER, MASS.

I trust you will pardon me for asking your attention to a subject which may seem of but little practical importance, and is interesting mainly because it is so rarely met with. I have ventured to report these cases of malignant disease affecting the ovaries, because they present some features of unusual clinical interest and because they will serve very well to introduce the subject of ovarian pathology, about which there seems to be so much confusion.

I think no one who has attempted to do much pelvic surgery himself, or has tried to study pelvic surgery from the medical periodicals or in society transactions, can fail to be impressed with the want of exact knowledge of the various conditions which may be met with in the normal ovary, and with the want of a generally accepted scientific standard, in accordance with which the departures from the normal may be recognized and properly classified. The confusion has been made much worse by the tendency of modern surgery to remove the ovaries upon every slightest pretext, and then to examine them with a determination to find something which should justify the mutilation. The more accurate knowledge which will dispel this confusion must come, step by step, each step perhaps contributed by a different observer.

Can not we, with the increasing clinical opportunities that are being constantly afforded, contribute

something toward the establishment of one of those steps? In the hope, then, of awakening some interest in this subject, I submit these few cases, asking you to remember that nearly all of them occurred among my earliest operations, and that the reports are far from being as full or as accurate as I should like to have them.

The relative frequency of malignant tumors of the ovary is as yet undetermined. Reliable statistics on this point are still too few to furnish any positive data. Cohn's report of 100 cases occurring in Schroeder's clinics, is still the largest number reported, and this list has been reduced by Butlin to 55, by the exclusion of doubtful and unoperated cases. That would be about 8 per cent. of all cases observed during the period covered by his report. Olshausen, grouping all solid tumors together, believes that they represent about 5 per cent. of all new growths of the ovary, and further, characterizes almost all of these as malignant. In Homan's series of 384 laparotomies, there were 7 cases of undoubted malignant disease of the ovaries, but there were 8 other cases in which after removal of the ovarian tumor the patient had died from the appearance of malignant disease elsewhere. The presence of malignant disease at the time of or following the removal of an ovarian cyst, in itself of benign appearance, has also been noted by other observers, and is relatively so common as to make it seem more than a mere coincidence. I have, myself, had one such case which is, I think, of sufficient interest to warrant a brief report:

Mrs. H., 53 years old, had been married thirteen years; had never been pregnant; menopause four years ago. Two of her aunts had died of internal cancer, and her father had died of cancer of the face. She had been failing in health for a year; had been suffering from abdominal pain, vomiting and distress after eating, with marked loss of flesh and strength. Five months ago had observed abdominal swelling, which had yielded to medical treatment, but had quickly re-appeared with return of intense pain and constant vomiting. She was entirely confined to the bed. Her abdomen was immensely distended, somewhat tender, transmitted wave of fluctuation readily, was dull over the lower half, resonant in both flanks. I operated on May 6, 1892. On the morning of the operation, her pulse was very small and feeble, 130; extremities cold and moist; had been vomiting all night, a dark greenish fluid in large quantities. She appeared to be *in extremis*, and I certainly expected that she would die during the operation. On opening the abdomen, about three quarts of clear straw-colored fluid of a slightly viscid consistency were evacuated, and a cyst of the right ovary, about eight inches in diameter exposed. It contained a dark thick fluid, was unilocular, and presented only loose adhesions to the rectum and pelvic floor. It was quickly removed, and to my surprise she rallied well from the ether. Pain and vomiting ceased, and at the end of ten days she could be carried to a lounge in the adjoining room and seemed to be gaining steadily. About four weeks after the operation, pain and vomiting and abdominal swelling re-appeared, and on June 22, seven weeks after the operation she died. For the following very careful and accurate account of the tumor and of the conditions presented by the *post mortem* examination I am indebted to Dr. W. S. Miller, now of the University of Wisconsin:

"The growth was a large cyst, for the most part smooth, but here and there a warty nodule was seen projecting into the cavity of the cyst. About the pedicle the walls were thickened and the nodules were more numerous. I examined portions of all these places, *i.e.*, the thin wall of the cyst, the nodules and the thickened wall about the pedicle. The thin wall of the cyst proved to be that of an ordinary cyst of the ovary; the nodules were simple papillary growths on the wall of the cyst, and the thickened wall of the part about the pedicle showed nothing malignant. The wall was

thickened and the papillary growths more numerous. I remember feeling quite chagrined at the autopsy to find a malignant growth when I had reported on the case as being non-malignant, but I could not then, and I do not now, see anything in the sections to warrant a diagnosis other than papilloma of the ovary.

"At the autopsy a large accumulation of fluid was found in the abdomen, about a pail and a half in all being removed. The entire abdominal cavity was filled with secondary growths of cancer, and in the pelvis all the organs were so firmly matted together that they were almost indistinguishable. This growth in the pelvis seemed to take its origin from the stump of the ovary, but it had none of the appearance of a primary growth. As you noted at the end of your notes, the primary disease was in the pancreas, and the growth in the pelvis seemed to be an implantation on the stump of the cyst."

The tumor was a papillary cystoma, a form of new growth generally classified as non-malignant, except when the papillæ themselves are the seat of cancerous infiltration, and all the cases of this kind are excluded by Butlin from the reports of Cohn and others, in his consideration of the relative frequency and results of malignant disease of the ovary. In the case here presented it would be necessary, to conform to this view, to suppose that the cyst was an accidental complication of the disease of the stomach and pancreas, entirely independent of it, and that the cancerous condition of the stump was not in the nature of a recurrence but was a secondary chance implantation of the disease in this locality. It seems to me that a much simpler and more natural explanation, more in conformity with our knowledge of the history of malignant diseases elsewhere, is to assume that there was something malignant in the cyst itself. These papillary tumors do give rise to metastases, parasitic in their formation to be sure, but very different from anything that we observe in the history of benign tumors. Pozzi, in his late treatise on gynecology, calls attention to the greater degree of malignancy of papillary cystomata, the uncertainty as to what part of the ovary they grow from, and calls for further and more careful investigation of this question. I have not time here to enter into any exhaustive study of the question, but present it to you as one of the unsolved problems of ovarian pathology. Should their malignancy be established, as seems to be conceded by Greig Smith, the proportion of malignant to benign tumors of the ovary must be much larger than is stated by Olshausen.

There is very little in the clinical history or physical examination of ovarian tumors to suggest their malignancy. Ascites is commonly found in connection with both sarcoma and carcinoma, and is relatively infrequent as a complication of benign tumors. Its presence must, therefore, always be regarded with suspicion. This suspicion is further strengthened by the existence of disease in both ovaries at the same time, especially if the tumors are hard, smooth and freely movable; and by a history of rapid growth. It would seem as if, contrary to the general rule, malignancy was relatively more common in tumors appearing in early life. Of seventy-seven cases of carcinoma collected by Leopold, twenty-seven occurred between the ages of 8 and 30, most of them about 20 years, and in thirty-seven cases of ovarian sarcoma collected by Olshausen, fourteen were in patients under 30 years old. It has been suggested therefore, that malignant disease is to be looked for often about the age of puberty and again at the beginning of senile atrophy. Pain in the tumor itself is not often observed; the pain from peritoneal irri-

tation is more common from the solid than from the cystic tumors.

The great majority of all solid tumors of the ovary are malignant. The malignancy of a cystic growth can be determined only after its removal. In the latter states, the presence of a well marked cachexia, of enlarged glands in the groins, or of other visceral metastases is of vital importance.

In connection with this question of diagnosis, allow me to present the history of a case in which the clinical signs are perfectly characteristic of malignancy, while the microscopic appearances seem to point with equal force against it. The case illustrates again, how indefinite and unsatisfactory is our knowledge:

Miss A. S., 30 years old, was referred to me in October, 1891, by Dr. J. R. Lincoln, of Millbury. She had not been well for two years; had complained constantly of pain in her back and hips, more severe in the right, and frequently making it impossible for her to work. It had been growing much worse for the past four months and for eight weeks she had been unable to work at all. Catamenia were regular, of normal amount, and unattended by pain, except on the first day. The abdomen presented neither general nor local distension, was everywhere tympanitic, but was very sensitive to pressure in the right iliac region, which was occupied by a hard irregular mass, apparently beginning at a point one inch above the level of the anterior superior spine, and extending downward into the pelvis, and laterally to the median line. Per vaginam, the uterine body seemed crowded to the left, while on the right and behind could be felt this same hard irregular mass. On opening the abdomen, both ovaries were found very much enlarged, about the size of a small peach, of a hard firm consistency and non-adherent. These were removed as were also two enlarged mesenteric glands. The large mass on the right side was found to consist of a hard bunch occupying the cecum and its mesentery, which rested upon and had moved with the right ovary. The surface of this bunch was smooth, translucent and entirely free from adhesions. Its removal was not attempted. The patient recovered from the operation, but failed gradually in health, became very much emaciated, and although no signs of pulmonary disease were manifested, died in September, 1892, ten months after the operation. The bunch on the right side remained practically unchanged, and a second bunch developed upon the left. Although no autopsy was permitted, there can be no doubt but that she died of malignant disease of the abdomen. I felt very confident that the tumor of the cecum, the bilateral ovarian tumors and the enlarged lymphatic glands would present evidences of the same malignant infection. Upon microscopic examination by Dr. Miller, however, the ovaries and glands were pronounced pure adenoma.

It is unfortunate that in this case the specimens have not been preserved, but they were examined very carefully by Dr. Miller and a typical section was mounted by him, which has been examined by Dr. Baker and Dr. Mallory of the Harvard Medical School, both of whom have confirmed Dr. Miller's report. I can not, however, in any way reconcile the report with the clinical history, and am the more inclined to doubt our correct interpretation of the microscopic appearances, inasmuch as Olshausen and Bland Sutton both state that pure adenoma always appears as a cystoma, and Pozzi fails to notice adenoma as one of the solid tumors of the ovary. Neither of these specimens presented the gross appearances of cystic disease.

There is no treatment applicable to malignant tumors of the ovary except removal, and the operative technique is in no way different from that employed in common forms of cystic disease. The results of operative interference are, however, important and of sufficient interest to warrant a brief review. Butlin has collected ninety-nine cases from the reports of Cohn, Olshausen, Billroth and Thornton. Of these,

thirty-three died from causes directly attributable to the operation, "a very large mortality when compared with the general statistics of ovariectomy." Two of the three cases of sarcoma removed by Homans died from the effects of the operation. It is evident, therefore, that the removal of malignant tumors is attended with far greater risks than the removal of benign ovarian cysts. The subsequent history of those who recover is equally discouraging; only five out of forty-seven patients whose cases could be followed, were alive and well at the end of three years. In the only one of Thornton's cases that remained well three years, the woman had borne a child two years after the operation, and of this he says: "No case could have looked more hopeless than this one did, and the tumor was of a kind in which one would have feared early recurrence." Although there is but little encouragement to be derived from these results, we may, I think, at least go as far as Butlin, in concluding that "the reasons for attempting to remove malignant ovarian tumors are as strong as those which lead surgeons to operate for malignant disease in most other parts of the body."

To this summary, allow me to add two cases from my own series of operations. Both were sarcoma. One is alive and well now, more than five years since the operation. The other died ten months after the operation, and I present her case with the report of the autopsy:

Case 1.—F. S., age 15½ years; works in a shoe shop; came under my observation in March, 1889; maternal grandmother died of cancer of the breast; catamenia appeared at 14, very irregular, not painful, flow considerable in amount, lasting one week; during the winter had noticed that her bowels were hard and swollen, and in February accidentally discovered for the first time a hard bunch in the lower part of the abdomen. On February 18, she came home from work with her feet and clothes wet, and complained of not feeling well. The catamenia were due and came on that night with much pain, headache and general malaise. During the next three weeks, she had a temperature ranging from 99 to 102, much local tenderness over the area of the tumor, with abdominal pain; catamenia continued profusely until March 2. She was pale, very thin, had no appetite, could not sleep and felt weak and languid. There was no nausea, no vomiting, and no difficulty about micturition; bowels inclined to be loose.

Filling the right iliac region, extending upward to the level of the umbilicus, and across into and occupying the greater part of the left side, was a hard, elastic, non-fluctuating tumor, slightly movable, with a deep pelvic attachment. It was irregular in outline, and on its anterior surface was a soft sausage-shaped mass freely movable upon it, which felt as if it might be a loop of intestine. The tumor so filled the pelvis that the vagina seemed very small indeed. The cervix could be indistinctly felt high up behind the pubes; the body of the uterus could not be recognized. Although impossible to move it much, the mass could be lifted slightly from below. There was no ascites.

On opening the abdomen on March 16, the movable mass on the anterior surface of the tumor was found to be the uterus, not enlarged, but dragged up out of the pelvis, until the upper border was on the line of the umbilicus. Beneath it and the broad ligaments lay the tumor, irregular in outline, filling the pelvis and everywhere adherent. The adhesions were for the most part soft, friable and easily separated except at the bottom of the pelvis, where they were so tough as to fix the mass firmly, not only to the pelvic floor, but also to the wall of the rectum. Although for the most part of a dense firm consistency, there was an area as large as a 50-cent piece on its upper surface which was semi-fluctuating; no fluid could be withdrawn by trocar, but on enlarging the puncture a small amount of thin fluid and a good deal of soft granular detritus was removed and the size of the mass was sensibly diminished. It proved to have its origin in the right ovary, and a pedicle was secured from the right broad ligament. The patient made a slow, tedious recovery, and suffered from well marked hysterical mani-

festations, convulsions, etc., for several months. Her recovery, however, was finally complete, she became a clerk in a drygoods store and afterwards married. She has remained well up to the present time.

This was my first laparotomy, and had it not been for the skilful and patient assistance of my father, the result, I am sure, would have been far less satisfactory. To his help and encouragement, I owe not only the favorable result in this case, but also whatever measure of success I have obtained in surgery.

The specimen was a somewhat irregularly shaped nodular tumor, of rather firm consistency, weighing about two pounds. On section, it presented numerous small cysts containing clear thin fluid, imbedded in a fibrous stroma which was for the most part dense and firm. Over a considerable area, however, it was much softer and more vascular. The microscopic examination was made by Dr. E. V. Scribner, who was at that time the pathologist to the Memorial Hospital. He reported that it presented the typical appearance of a round-celled sarcoma of the ovary.

Case 2.—Mrs. F., 64 years old, a widow, was referred to me by Dr. D. B. Lovell, in October, 1893. Her mother died of cancer at the age of 78. Her father and two sisters had died of consumption. She was married at 25; and had three children and two miscarriages. Catamenia were always regular and not painful, and had ceased when she was 42 years old. Two years ago she first noticed an abdominal swelling which would, however, at times disappear. Eighteen months ago had considerable pain in the right upper quadrant of abdomen, and soon after was laid up three months with pain across lower part of bowels. Remained well then until last March, when the same trouble returned, and she has not been well since. For two months past has noticed progressive increase in size of abdomen.

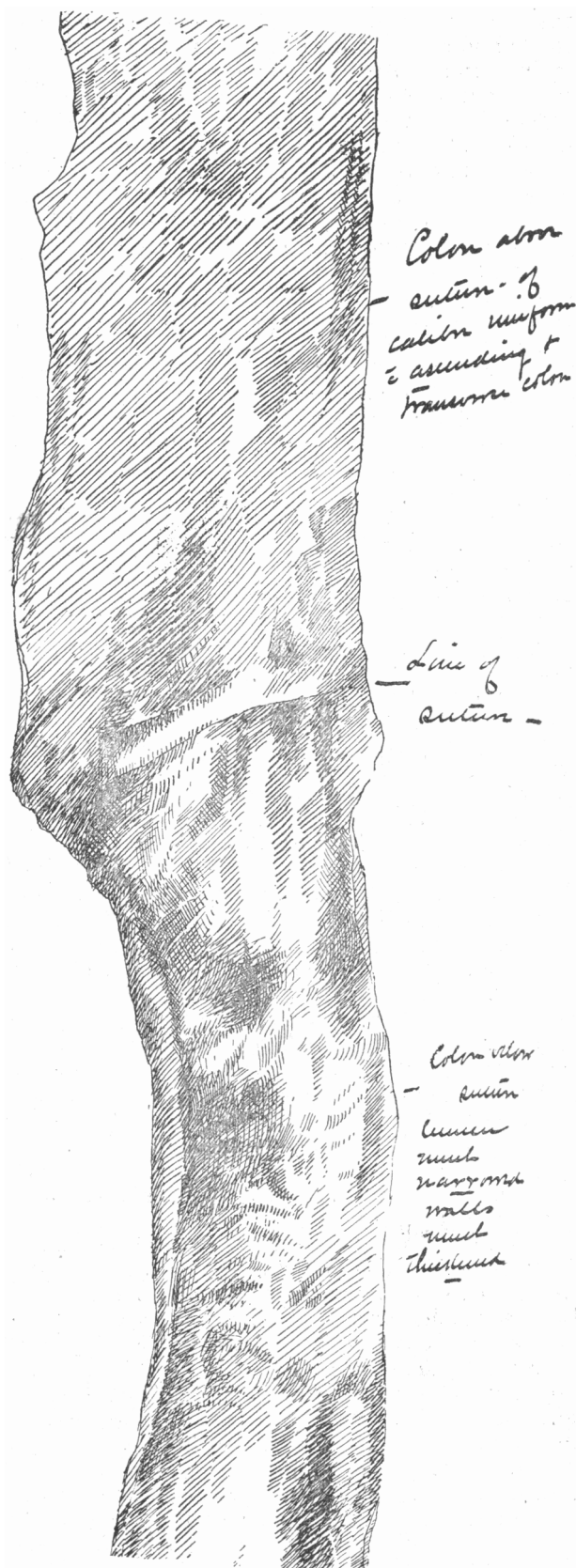
She was well developed and well nourished, weight 160 pounds, girth of chest thirty-seven inches, of abdomen forty-two; heart sounds normal, slight dullness with a few moist rales at both bases behind. The abdomen was evenly distended, tympanitic over the upper part, flat at the side and dull in front from two inches above the umbilicus. Palpation negative at sides, fluctuant in front, and tender everywhere, especially in the left lower quadrant. There was a small umbilical hernia, its contents fluid. Vaginal examination revealed cervix high up behind pubes, posterior vagina wall bulging and fluctuating.

On opening the abdomen, two quarts of pale straw-colored fluid evacuated, revealing a large, solid tumor, occupying nearly one-half the abdominal cavity, with tough fibrous adhesions to the omentum, small intestines and to the descending colon. In separating the adhesions to the small intestines, bits of the peritoneal investment of the tumor were left upon the intestinal walls. In separating it from the descending colon, the colon was accidentally injured so that it was necessary to resect about one and one-half inches just above the sigmoid flexure. The tumor was removed without further difficulty and proved to have originated from the left ovary. The divided ends of the colon were united by three rows of buried silk sutures.

The patient rallied well from the operation, and showed no signs of any general peritoneal infection. On the following day she had some bloody discharge from the rectum, but at the end of a week had a natural movement of the bowels. There was for some time a slight purulent discharge from the abdominal drainage tube which was offensive but at no time feculent in character. When this discharge ceased, there began to be a purulent discharge from the rectum, which continued for two or three weeks. I think there was a localized abscess around the stump of the tumor, which discharged through the rectum, giving rise to the dense pelvic adhesions and to the thickening of the rectal walls, and narrowing of its lumen. The region of the sutured colon seemed to be free from any involvement in this process, as is shown in the accompanying drawing. Mrs. F. gained strength very slowly until in January she became deeply jaundiced, and from that time failed steadily though very gradually. The enlargement of the liver was felt first in July and she died on August 13, ten months after the operation.

The following account of the *post-mortem* appear-

ances is taken from the notes of Dr. Baker, who performed the autopsy, and to it I append his descrip-



tion of the microscopic appearances of the tumor and its metastases:

The abdomen contained about four quarts of bile-

stained serous fluid, having a specific gravity of 1021. The intestines were everywhere firmly matted together and distorted, especially near the pelvis. About midway of the descending colon, after much trouble in freeing it from old adhesions, was found the site of an intestinal resection. Below it was a slight dilation of the gut, and at the point of the suturing was a slight ridge of mucous membrane, extending around the lumen. Externally, the point of union could not be recognized. Two silk sutures were discovered, in no way changed during ten months. All the pelvic organs were matted together in one inseparable mass; inguinal glands not enlarged and no recurrence visible in the pelvis.

The liver weighed four pounds and fourteen ounces. It presented numerous nodules from the size of a pea to that of a hen's egg, especially about the lower border of the right lobe, but also scattered over the other lobes. These were reddish white, rather firm and dense. The liver is markedly fatty, and in and across the bile-stained section shows numerous nodules scattered throughout the organ. The gall bladder was not involved. Similar metastatic nodules were, however, found in the lungs, scattered over the parietal peritoneum, and in the mesenteric glands.

The specimen removed was a grayish, opaque tumor, weighing five pounds, of rather soft consistency. On section were found numerous cysts varying in size from that of a hazel-nut to that of one just visible to the unaided eye, filled with a transparent tenacious fluid. Microscopic examination showed it to be made up mainly of small round cells, in places spindle-shaped, imbedded in a homogeneous intercellular substance. It was exceedingly vascular. Sections made from the lung and liver showed the same characteristics, except that they were of firmer consistency. Diagnosis: Sarcoma with metastatic nodules in liver, lungs and peritoneum.

A CASE OF RAYNAUD'S DISEASE.

BY WM. F. BATMAN, M.D.

LADOGA, IND.

A vascular disorder, probably dependent upon vasomotor influences, characterized by three grades of intensity.

Depew H., son of a physician; age 34; dark hair; gray eyes; height five feet six inches; weight 120 pounds. He is of a neuro-phlegmatic temperament. By avocation a farmer. His father a hale old man at 70; his mother in good health at 66. Had some uncles on the fraternal side who died with pulmonary tuberculosis, but no other hereditary disease traceable on either side. Had typhoid fever nine years ago, but so far as he knows fully recovered. Had the influenza three successive years, 1890, 1891 and 1892, and had tardy convalescence with each attack.

He first noticed these symptoms three years ago, which have gradually increased and affect the middle or ring finger of the right hand which, with the appearance of winter, is hyper-sensitive to cold, and with slight exposure feels numb and cold and then, when reaction takes place and the whole end of the finger gets congested, looks red and full of blood and tingles for hours. This condition is repeated, in fact, always present on exposure during the winter months. One peculiarity of this disease is the absence of the symptoms in the summer time. The patient did not have any symptoms for two months the past summer. Hare's "System of Therapeutics" and Osler's "Practice of Medicine" both give as a remarkable concomitant symptom, hemoglobinuria, which may develop during an attack or may take the place of an outbreak. This appeared plainly in this patient last