ARTHUR PURDY STOUT SOCIETY SEMINAR


Discussions by:

Dr. Arthur Purdy Stout
INTRODUCTION:

The idea of having a seminar entirely devoted to cases arising in one region of the body has produced a collection of problems which I have found most interesting and instructive. The retroperitoneum, of course, is a most fertile field for tumors because it is a meeting ground of such a variety of adult and embryonal tissues. I venture to say you may encounter some cases in this collection which are not described in the fascicle on this subject. This is not to be critical of Lauren for I am sure we could make up seminars consisting of cases dealing with almost any other field covered by the fascicles for which we could get little or no help from them. I know of tumors now involving the regions covered by all my fascicles which are not mentioned by them. It is a good argument why the fascicles should be revised and reprinted.

As our Seminars increase in number, I always think the current one is the most difficult of all. I suppose that is because they have all had cases unknown to me at the time of preparation. Later, we only recall the solutions and not the hard labor of analysis whereas with a current Seminar the labor is fresh in our minds. I suppose this is the path of progress which so far as I am concerned is never-ending.

Arthur Purdy Stout, M. D.
Case 1 - (65271) Benign diffuse tubular mesothelioma (mesonephric?) of retroperitoneum.

2 - (64308) Carcinoma (primary?) of retroperitoneum.

3 - (64591-65580) Embryonal round cell rhabdomyosarcoma of retroperitoneum with metastases in peritoneum.

4 - (65460) Malignant organoid granular cell myoblastoma (?) of retroperitoneum.

5 - (63845) Hemangiopericytoma of retroperitoneum and cerebral meninges.

6 - (65320) Fibrous xanthoma of retroperitoneum (recurrent).

7 - (62168) Fibromatosis (vascular) of mesentery of jejunum.

8 - (61818-63846-65640) Xanthogranuloma of retroperitoneum, recurrent.

9 - (62327) Xanthogranuloma of mesentery.

10 - (64538) Malignant mesonephroma (?) of mesentery following malignant mesonephroma of ovary (?).

11 - (A-86046) Adenoma (renal type?) of retroperitoneum.

12 - (65546) Squamous papillomatosis of bladder, ureter and urethra.
Microscopic Observations:

Various sections from different parts of this tumor show everywhere a comparable picture. Embedded in fibrous tissue which sometimes interdigitates with surrounding striated muscle are a great many cystic spaces. These are lined usually with a single layer of cells. These are either flattened and resemble endothelial cells or else they have enlarged rounded nuclei forming a lump in the middle of the cell or the whole cell cytoplasm as well as nucleus is thickened. When this occurs, the lining cells are occasionally heaped up forming 2 or 3 layers and in some places there are papillary formations. The lining cells show no mitoses and do not suggest malignant tumor cells. No smooth muscle bundles are detected in the walls of the cavities but with the trichrome stain, it is sometimes possible to find extending outward from the bases of the lining cells, slender red-stained filaments in parallel arrangement suggesting the appearance of myoepithelial tails. Since these filaments are accompanied sometimes by slender nuclei, it is probable these are not myoepithelial tails but simply the cytoplasmic prolongations of fibroblasts. The lumens are either empty or contain a granular and sometimes mucoid material that is pink with mucicarmine and blue with Masson's trichrome stain. No evidence of droplets of this material can be found in the lining cells although it is sometimes adherent to them. No cells of any kind are found in the lumens except that some apparently extravasated blood is found in one widely-dilated cyst. The fibrous stroma contains a good many capillaries and venules.

Comment:

I find this case exceedingly hard to interpret because the evidence seems so conflicting. At first glance, it is very suggestive of a lymphangioma, but I have never seen a lymphangioma with mucoid material in the lumens. One would next think of a benign tubular mesothelioma. This seems much more reasonable except for the fact that it appears to be rather deeply situated in the transversalis muscle, and we are not told whether it is in contact anywhere with the peritoneum. Among the rather large number of tubular peritoneal mesotheliomas, I have never encountered one in this situation. However, if we can believe that the so-called adenomatoid tumors of the genital sphere are mesotheliomas formed from the special mesothelium covering the male and female genital organs which it is claimed is of mesonephric origin, we might suppose this tumor is also a mesonephric mesothelioma somehow derived from misplaced mesonephric cells. I cannot think of any other explanation for it and as far as I am concerned, it is unique.

Diagnosis: Benign diffuse tubular mesothelioma (mesonephric ?) of retroperitoneum.

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This tumor is a relatively well differentiated glandular mucus-secreting carcinoma. There are many goblet cells with strikingly red material in them as well as in the glandular lumens when the mucicarmine stain is used. In addition to the well differentiated areas, others are less well differentiated and sometimes poorly differentiated cords and groups of tumor cells invade the surrounding fibrous tissue. No cilia were detected by me on the tumor cells.

Comment: This tumor has all the characteristics of a largely well differentiated carcinoma of a type usually found in the intestinal tract. It could, therefore, be a metastasis from an occult tumor of the intestinal tract which was not detected. But it is not necessarily that, and I believe that is a less likely explanation for it. It is well known that there is a malformation of the intestinal tract called doubling or enterocystoma. In such cases, there may be a short loop of intestine closed at both ends which either parallels the gut or is at right angles to it and which lies in the wall of the normal gut or immediately outside of it. This carcinoma might have arisen from such a malformation. One could feel sure of it if there was any evidence of smooth muscle or normal mucosa suggesting that the carcinoma developed from an enterocystoma but there is none in the sections available to us. Therefore, this explanation is purely hypothetical. Since teratomas develop in the retroperitoneum, one might suggest that this carcinoma developed from a teratoma and in its growth obliterated all other evidence of the teratoma. This seems to me extremely unlikely because probably almost all of the tumor mass was removed and multiple sections have shown nothing but the carcinoma. Whatever the origin of this tumor, somewhat similar cases have been seen before in the retroperitoneum. Some years ago, a middle-aged woman at laparotomy was found to have a tumor completely surrounding the abdominal aorta. A biopsy showed that the tumor was a glandular carcinoma of the intestinal type and no primary site was found. At a subsequent procedure, the abdominal aorta below the renal arteries but including the bifurcation was resected and replaced by a human aorta from an aorta bank. The tumor had invaded the media but had not perforated the aorta. This woman lived for about two years after this operation, finally dying of recurrence. At autopsy the graft still functioned, although there was a local recurrence. No other tumor was found elsewhere in the body. Whatever the explanation in this case, it is quite possible that the tumor was primary in the retroperitoneum. The case will be extremely interesting to follow.

Diagnosis: Carcinoma (primary ?) of retroperitoneum.

Ref: Melicow, M. M.: Primary tumors of the retroperitoneum.
Microscopic Observations:

This tumor is relatively uniform throughout. It is composed of innumerable small compartments enclosed by reticulin fibers. Each compartment contains several rounded or polygonal cells of moderate size which are loosely disposed and unsupported by any fibers about them. The individual cells have a rather scanty cytoplasm which is only slightly acidophile, but this is sometimes blown up by large empty vacuoles. In the areas where the cells are markedly vacuolated, the compartments are larger and much less well defined. A stain for fat shows that the material in these large vacuoles is not lipid. Here and there, an occasional cell shows a little lipid but this is probably only evidence of degeneration in an occasional cell. Where the tumor comes into contact with the peritoneum, the mesothelial cells show enlargement and even proliferate, but these cells differ from the tumor cells. A section of one of the recurrent nodules removed at the second operation shows that the tumor has maintained the same histological appearance; the vacuoles are very prominent giving the groups of tumor cells the appearance of lying in a reticulum. The overlying peritoneum shows the same marked hyperplasia of the mesothelial cells.

Comment:

Since this tumor has compartments like an endocrine tumor, it is necessary to discuss whether or not it can be any kind of an endocrine tumor. In my opinion, it is certainly not either a respectable non-chromaffin paraganglioma nor a pseudo-non-chromaffin paraganglioma, i.e., a malignant organoid granular cell myoblastoma. The cells do not have granular cytoplasm, which is enough to exclude the latter tumor, and the compartment walls lack the vascular element which is essential for the non-chromaffin paraganglioma. The compartments are not vessel walls so one can exclude malignant hemangiendothelioma. This leaves only the tumor called alveolar rhabdomyosarcoma by Riopelle and by Horn - a name which is abhorrent to me for these structures are not alveoli, i.e., tubes, but only imitations. If it had been called pseudo-alveolar rhabdomyosarcoma, I would not object if it is desired to distinguish this variety from other rounded cell rhabdomyosarcomas but unless it can be proved that this variety differs biologically from the non-pseudo alveolar rhabdomyosarcoma, I cannot see any reason for singling it out by using a special name for it. I could not find any proof from differentiation of the cytoplasm that these cells are rhabdomyoblasts. The only features I am depending upon are the general pattern of the tumor and the large non-lipid containing vacuoles which may have glycogen in them. It is, of course, very unusual to find such a tumor in a 60-year old man but not impossible. We have before seen occasional rhabdomyosarcomas of the juvenile type in adults.

Diagnosis: Embryonal round cell rhabdomyosarcoma of retroperitoneum with metastases in peritoneum.

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(See next page for references.)

Microscopic Observations:
In some respects, this tumor is like Case 3. The tumor is compartmented by fibrous septa. But here, the resemblance stops for there are capillaries found in a great many of the fibrous septa. Moreover the cells are larger, often elongated rather than rounded, they are usually not vacuolated and, most striking of all, the cytoplasm is filled with small strongly acidophile granules. Nowhere could I find any suggestion of cross striations. The nuclei are usually rounded but in some cells they are large and tend to be pyknotic. Another striking feature is that after searching 50 high power fields I have not been able to recognize any mitotic figures. The Laidlaw stain shows that there are no reticulin fibers among or around the individual cells.

Comment:
This tumor must be either a malignant non-chromaffin paraganglioma or a malignant granular cell myoblastoma. It cannot be a rhabdomyosarcoma because the cells are too large, too bizarre and show no differentiation in the direction of rhabdomyoblasts other than the acidophile granules. It cannot be a hemangiopericytoma because of the granules in the cells and the fact that the individual cells have no reticulin fibers about them. There is nothing about this tumor which would suggest any kind of a carcinoma, primary or metastatic. This reduces the possibilities for me to two: malignant non-chromaffin paraganglioma and malignant granular cell myoblastoma either of the organoid or non-organoid variety. This seems to me a very hard decision. In favor of malignant non-chromaffin paraganglioma are the usually organoid arrangement with fibrovascular septa separating the cell groups, the paucity of mitoses and the shape of the cells, the presence of large cells with sometimes pyknotic nuclei. Against this are the strongly acidophile granules in the cells which I cannot recall having seen in such profusion in cases of non-chromaffin paraganglioma. The latter tumor can be malignant and metastasize but it is not common. Largely because of the granules, I will have to favor malignant granular cell myoblastoma. It is a toss-up whether or not to assign it to the organoid variety or the non-organoid variety because of the size of the cell masses but I suppose since it does have a generally organoid aspect, it had better be placed in that group. Incidentally, I do not understand the destructive lesion present for 10 years in the ilium and ischium. If it has anything to do with this tumor, it cannot be primary for this is not a bone tumor. If it is a metastasis, it is remarkable it has been present for ten years.

Diagnosis: Malignant organoid granular cell myoblastoma (?) of retroperitoneum.

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Please see next page for Addendum.
ADDENDUM:

After the above comment was completed, Bob Horn and Jerry Fine made available for us sections of the metastases in various organs. If we had not seen the sections of the primary tumor, I would have assigned this case to the group of malignant hemangioendotheliomas because in most places, the metastases consist of tumor cells more or less heaped up about small and large spaces filled with red blood cells. Yet how can it possibly be that when one recalls the appearance of the primary tumor with the orderly arrangement of intact capillaries surrounded by the granular tumor cells with their arrangement into more or less definite masses and short cords? I can only suggest that when this tumor began to spread and metastasize, its infiltrative growth engendered hemorrhages with disappearance of the capillaries as such and production of an appearance strongly mimicking malignant hemangioendothelioma. The long duration of the case, the disappearance of the lesions in the ilium and ischium and the marked difference between the primary growth and the metastases are an enigma which I cannot solve.

Arthur Purdy Stout, M. D.
Microscopic Observations:

The lesion in the retroperitoneum and in the meninges are comparable. In this case, the cells are not compartmented as in the two preceding cases but the tumor is very vascular as is best seen with a silver reticulin stain which reveals some of the capillaries recognized only with difficulty with other stains because their lumens are only potential spaces. The rather small, rounded or polygonal tumor cells that are packed in around these capillaries to form a solid mass are each encased in a thin reticulin sheath consisting of a single fiber. With the H&E stain, the presence of some of these hidden capillaries without lumens is indicated by prominent elongated endothelial cells. The tumor cell cytoplasm is scanty and amphoteric. Mitoses are present but not in large numbers.

Comment:

It is obvious that these tumors are quite different from the preceding ones and that they have all of the classical features of hemangiopericytomas. It might interest you to know that this tumor is slowly gaining recognition. I now have knowledge of 98 publications which have appeared since Dr. Murray and I first christened it and 30 of them have been in foreign journals. I am sorry to say that not all of the published cases meet my criteria and I am afraid that a good many people have only the vaguest notion about the histological appearance. This is easily apparent when one looks at their illustrations. Whenever I know of someone preparing to publish a paper dealing with the subject, I request permission to take photomicrographs for them so that at least some of the papers are properly illustrated. I suppose a tumor may be said to have arrived when it has been made the subject of a graduation thesis. There are two such in French and I append the reference to one of them below because it has quite an extensive bibliography including a number of papers unknown to me. I have two papers on the subject which will probably be published during the coming year; one of them deals with hemangiopericytomas in children which has been accepted by CANCER and the other deals with a hemangiopericytoma of the round ligament of the liver which will appear in AMERICAN JOURNAL OF SURGERY. Hemangiopericytoma has joined the ranks of the extra-pancreatic tumors causing hypoglycemia and another tumor type in which I have a considerable interest, the mesothelioma, has also made that exclusive society. Altogether, we have records of two hemangiopericytomas and three mesotheliomas that have been associated with hypoglycemia.

Are these two tumors independent or is the meningeal tumor a metastasis from the retroperitoneal one? I cannot answer that. Hemangiopericytomas can metastasize to the meninges and they can also be primary there.

Diagnosis: Hemangiopericytoma of retroperitoneum and cerebral meninges.

Arthur Purdy Stout, M. D.

Microscopic Observations:

The seminar slide shows a tumor that is extremely vascular. The capillaries have exceedingly thick walls and these dense collagen sheaths have in some instances narrowed the lumens to pinpoints and in others obliterated the lumens entirely. The cells packed in around the vessels vary from rounded to slightly elongated but are remarkably uniform in appearance. I spent some time looking for mitoses but did not find any. The reticulin stain is most important for it shows that almost everywhere there are no reticulin fibers among or around the cells. Only occasionally can one find areas where a meshwork of fine reticulin fibers pass out from the vascular sheaths to ramify among the tumor cells.

Comment:

I would have accepted this tumor as a hemangiopericytoma without much hesitation in spite of the lack of reticulin fibers because the vascular pattern is so perfect if it was not for the fact that I have been able to study sections of the tissue removed in 1947, 1948 and 1956. The earlier 1947 sections give one a quite different conception of the tumor. In them, the tumor is shown to be quite vascular although the capillaries have walls of normal thickness so that they are inconspicuous. But the cells are quite different. Most of them are short spindles and have a helter-skelter arrangement with a tendency to form very short cords running in various directions. They do not quite produce spiral nebulae but give a vague suggestion of it in places. Most important of all, many of the cells are vacuolated and as the small vacuoles are perfect spheres, I will wager they contained lipids. In other words, in its earlier stages, this tumor had the appearance of a fibrous xanthoma and the cells instead of being pericytes are probably histiocytes. In 1948, the tumor had much the same appearance but some of the cells were somewhat more elongated and I can guess that it was this section that led to the diagnosis of fibromyosarcoma. But the vacuoles are still present in many of the cells and I would explain this phase of the tumor as caused by more of the histiocytes functioning as fibroblasts. In 1956, the picture is still that of a fibrous xanthoma with many tumor cells having foamy cytoplasms but now some of the capillaries have thickened fibrous walls. This may be an effect of the repeated courses of radiotherapy.

This case then is most instructive for we have glimpses of the gradual change effected in this tumor by time, repeated operations, and radiotherapy. Through it all, while changing its morphological appearance so that it has come to look something like a hemangiopericytoma, it has not changed its biological characteristics of an essentially benign but stubbornly infiltrative tumor. Dr. Shirley Kauffman and I have
recently completed a study of fibrous xanthomas and histiocytomas in children. Both are tumors of histiocytes, but the former has a great deal more fibrous element than the latter. We found only one fibrous xanthoma that behaved in a malignant fashion but there were three malignant histiocytomas.

**Diagnosis:**
Fibrous xanthoma of retroperitoneum (recurrent)

**Arthur Purdy Stout, M. D.**

**Reference:**
Microscopic Observations:

This very large tumor is basically a fibrous growth with great quantities of collagen and reticulin fibers. It does not everywhere form interlacing bands of fibers and spindle-shaped cells but in places the cells are small and oat-shaped or stellate embedded in very heavy collagen fibers. Another uncommon feature is the rather marked vascularity of the tumor. Despite this, large portions of the tumor are necrotic. No smooth muscle is recognizable although in some places there are long straight wire-like reticulin fibers such as one might expect to grow with smooth muscle or Schwann cells. At its margin, the tumor infiltrates and interdigitates with the muscularis of the gut.

Comment:

Because of its unusual features, I studied this tumor to see if it could possibly be a benign mesenchymoma but came to the conclusion there was no evidence of this. I also wondered if this could be primarily a hemangioma overcome by fibrosis but that too seemed impossible to accept. I think this must be a fibromatosis of the mesentery which is unusually vascular. I have seen a good many of these large mesenteric fibromatoses both in children and in adults. I used to think the more cellular ones ought to be classified as fibrosarcomas. Since I now believe that biologically there is no difference in behavior between a so-called differentiated fibrosarcoma and a fibromatosis, I tend to call almost all these tumors fibromatoses and will expect metastases in not more than one in 200 cases. They all infiltrate and recur if incompletely removed and they can be exceedingly destructive because of their stubborn infiltrative habits but only because of unchecked local invasion and not because of metastasis. Most of the tumors like this one, when they occur in the mesentery of the small intestine, are successfully excised. Since this tumor was very large, it is possible that it was incompletely excised.

Diagnosis: Fibromatoses (vascular) of mesentery of jejunum.

Arthur Purdy Stout, M. D.

References:

Stout, A. P.: Fibrosarcoma, the malignant tumor of fibroblasts. CANCER 1:30-63, 1948.

Microscopic Observations:

This tumor both in its primary manifestation and in its recurrence maintains a comparable picture. It consists of a huge collection of rounded and elongated cells set in a very delicate and relatively inconspicuous framework of reticulin fibers and furnished with a considerable number of capillaries. Many of the tumor cells are finely vacuolated and a Scharlach R stain shows a vast number of fine intracytoplasmic droplets of lipid. Very few lymphocytes are scattered at intervals in the tumor. In the recurrence, the picture is comparable but there are a few multinucleated cells and a few more mitoses.

Comment:

This is the picture of one variant of the tumor found chiefly in the retroperitoneum but occasionally in the posterior mediastinum and originally called xanthogranuloma by Oberling. The other variant which is less common shows a great many more fibroblast-like cells and fewer lipid-containing histiocytes. Some of the tumors in this more common variant represented by the present tumor have behaved in a puzzling fashion. The xanthogranuloma is a tumor that for a long time I regarded as benign although sometimes recurring when incompletely excised as in this case. However, in a report by Waller Hellwig and Barbosa in 1957, they dug up out of the literature some cases that either metastasized or else had multiple xanthogranulomas resulting in the death of the patient. So far I have not encountered any cases that metastasized but I have seen several that recurred and caused a great deal of trouble. The case reported by Waller et al has caused me a lot of trouble. I used the case in the Sixth Annual Slide Seminar of the New Jersey Society of Clinical Pathologists in December 1956. I had obtained material from Dr. Hellwig who had consulted me about the case. At that time, the growth had already recurred. The case next turned up in the 1959 Colorado Springs Seminar. I never recognized it because the sections used for distribution showed only masses of fat with some scattered areas of foam cells. Naturally I did not suppose it was a xanthogranuloma and since I knew it came from a recurring retroperitoneal tumor, I guessed that it was a recurring differentiated liposarcoma. Later, after I obtained additional sections that showed a picture comparable to this present case of Phil Flynn's, I realized that the Colorado Springs Cancer Seminar slides must have been made from an area of fat necrosis adjacent to the actual tumor. At last reports, that patient has had three removals of large masses of xanthogranulomatous tissue and is alive with persisting masses.

The question was raised after the first operation as to whether or not the xanthogranuloma is related to any of the generalized histiocytes because Waller et al reported that at the first operation, in
addition to the main perirenal mass, there was an eosinophilic granuloma in the perigastric region. In the great majority of cases reported, there has been no comparable association. The question has also been raised as to whether some or all of these xanthogranulomas may not be liposarcoma. I can only say that they seem to me to be different tumor types.

**Diagnosis:** Xanthogranuloma of retroperitoneum, recurrent.

Arthur Purdy Stout, M. D.

**References:**


3.) Stout, A. P.: Cancer Seminar, Penrose Cancer Hospital. (in press).


**ADDENDUM:** (P&S 65640)

As of May 2, 1960, I have learned from Phil Flynn that on April 20, 1960, this patient was operated upon for recurrences of his tumor. Four apparently encapsulated masses were found and removed. The largest measured 16 x 12 x 7 cm. and the total weight of the four was 1520 grams. Two other small masses were also removed but were not weighed or sectioned. The tissue was opaque and yellow and areas of necrosis separated the viable nodules. Microscopically, the appearance was like the original tumor with histiocytes predominating. An interesting clinical feature is that before this operation and the one that preceded it, the patient suffered from bouts of fever up to 101°F., associated with sweating. After each operation, within twelve hours, the bouts stopped. A biopsy of the liver was taken at this last operation. It showed a marked increase in the fat content of the liver cells which are swollen because of big intracytoplasmic vacuoles. Phil suggests there may be a relationship between the lipid-containing tumor masses and the fat in the liver. I have no opinion about this because I have never before encountered such a phenomenon.

Arthur Purdy Stout, M. D.
Microscopic Observations:

This tumor consists of many small groups of irregularly rounded cells enclosed within spaces in a dense fibrous collagenous stroma. The individual cells have small innocent appearing nuclei and at first glance seem to have very scanty cytoplasm but on closer inspection, it can be determined that in reality the cells are quite large because of vacuolated cytoplasm. In a few places, the fibrous stroma is less conspicuous and the groups of cells are larger. Here, there are a few vacuoles in their cytoplasm and one may encounter an occasional mitosis. But in neither area does it appear that the cells are forming reticulin fibers. A few groups of lymphocytes can be found and in some sections there are areas of necrosis.

Comment:

Although this tumor is much more fibrous and does not seem to bear much resemblance to Case 0, I can think of no other way of classifying it than to call it a xanthogranuloma. When I try to think of some other way of classifying these cells, I cannot fit them into any other category than histiocytes. The xanthogranuloma must be a close relative of the fibrous xanthoma and it may be proper to use that name for it. However, it does not seem to form the rather distinctive pattern of the fibrous xanthoma as it occurs in the superficial soft tissues. Moreover, all of the cases of xanthogranuloma of which I am aware have occurred in adults, whereas fibrous xanthomas and histiocytomas occur in children. Shirley Kauffman and I have just completed a study of histiocytic tumors in children which will appear some day I hope in CANCER, and we found no retroperitoneal cases. One of the juvenile fibrous xanthomas and three of the histiocytomas were malignant.

Diagnosis: Xanthogranuloma of mesentery.

Arthur Purdy Stout, M. D.
Microscopic Observations:

This bizarre appearing tumor appears to have several elements composing it. On the serosal surface, the mesothelial cells are swollen and have multiplied forming short papillary projections. Extending downward from this for a short distance are solid sheets of cells which also appear to be malignant mesothelial formations of the more common epithelioid type. A second element appearing only in two or three places are some tubes lined with a single layer of columnar cells that look exactly like epithelial cells. The major portion of the growth has a mesenchymal aspect, but its formations are most bizarre varying from myxomatous and fibrous formations to completely undifferentiated small dark cells of various shapes and marked hyperchromatism. None of the cells seem to have secreted mucicarminophilic material.

Comment:

This is one of these exasperating cases where we have sections of the tumor in the mesentery of the small bowel but do not have any clue as to the nature of the tumor masses in the frozen pelvis. The mesenteric mass might be (a) a primary tumor of local mesothelium, (b) a metastasis from an ovarian mesonephric or other tumor, or (c) a tumor of mesonephric heterotopic tissue at this site and not related to the pelvic masses. Any one of the three is a possibility. In favor of this being a primary solitary malignant mixed mesothelioma is the presence of the papillary tumor cells on the surface which look like malignant cells and invade for a varying distance into the tumor. The other element of the tumor could be the malignant fibroblastic part since there are many fine reticulin fibers among the tumor cells. But the stumbling blocks here are first the structure lined with cylindrical cells that have more of an epithelial than a mesothelial appearance and the fibroblastic part which looks to me more mesonephric or ovarian than like fibrous mesothelium. This leaves us with a malignant tumor with a mesonephric aspect which would have to be metastatic from a primary ovarian tumor or developed from heterotopic mesonephric tissue in the mesentery. I do not see how we can choose between these two from the available history but I am rather influenced by two facts: one is that as far as I am aware, no mesonephric remnants have been found in the mesentery of the small intestine. Ovarian tissue and a granulosa cell tumor have been found in the transverse mesocolon so that is a possibility. The other factor is that there has been trouble in the pelvis for some time and at operation a frozen pelvis was found. This would seem to make it perfectly possible for the large mesenteric tumor to be a metastasis from a malignant mesonephric tumor of the ovary and I will select that as my preferred explanation without ruling out the possibility of either of the other propositions.

Diagnosis: Malignant mesonephroma (?) of mesentery following malignant mesonephroma of ovary (?)

Arthur Purdy Stout, M. D.
Microscopic Observations:
This tumor is composed of innumerable glandular structures lined by a single layer of cells of an epithelial aspect. They vary from low columnar to cuboidal. As far as I can determine they show no evidence of secretion of mucinous or any other stainable material. The tubes appear long and twisted. They maintain lumens but are packed in quite closely together with a minimal amount of fibrovascular supportive framework. Evidently nutrition has not been sufficient for there are large areas of complete necrosis. I have not spent a long time at it, but I have observed no mitoses.

Discussion:
I cannot believe this is a tubular mesothelioma for I never saw one behave in this fashion. I suppose it is a possibility but on the basis of the appearance of these tubules and the proximity of this tumor to the kidney, I would guess that this tumor is related to the kidney adenomas. Certainly for me there is a strong resemblance. If this is a correct assumption, then we must call upon that convenient but perhaps overworked mesonephros to account for its appearance outside of the kidney. The question of malignancy is always interesting. Renal adenomas that grow large enough to cause symptoms are extremely rare. Including their own case, Cristol et al found only 50 cases reported. They develop at any age in either sex and have been known to reach a maximum weight of 22 pounds. The question of whether or not the large renal adenomas are malignant tumors remains undecided largely because most of the cases have been reported without any proper follow-up. I have not searched the literature carefully but I do not seem to have any reported cases of retroperitoneal renal adenomas. The case reported by Cristol et al while firmly attached to the lower pole of the kidney and indenting it, appears to be everywhere separated from the renal parenchyma by a fibrous capsule. This encourages me to believe that our present case may have some embryonal relationship with the embryonal forerunner of the kidney.

Diagnosis: Adenoma (renal type?) of retroperitoneum.

Arthur Purdy Stout, M.D.

References:

Microscopic Observations:
Sections from the bladder, ureter, and posterior urethra show that the mucous membrane has everywhere become squamous. It is markedly thickened and thrown up into papillary folds. On the surface is a rather thick layer of keratin and immediately below this, some of the cells show dyskeratotic granules. There is marked hyperplasia of the basal layer with hyperchromatism and many mitoses. The rete pegs sometimes project downward but the basement membrane is everywhere intact, and I can detect no evidence of carcinoma either in situ or invasive.

Comment:
Although this is not a retroperitoneal tumor, we thought the Seminar would like to see this case which must be very rare because I have never seen anything to compare with it nor have I read reports of any comparable cases. Squamous metaplasia of the bladder is not infrequent and squamous carcinoma sometimes develops from it. But a generalized process with a covering of the entire bladder mucosa and adjacent urethra and ureter with squamous papillomas that in the sections do not show any definite evidence of malignancy is so extraordinary that it is worthy of being added to some of the other wonders this Society has included in some of its past Seminars. I suppose the same process that produced the condylomata acuminata of the vulva and vagina must have operated to produce the same type of proliferations in the urethra, bladder and ureter. Since we have seen condylomas about the anus produce squamous cell epitheliomas, I would assume the same thing could take place in some affected part of the lower urinary tract in this case.

Diagnosis: Squamous papillomatosis of bladder, ureter and urethra.

Arthur Purdy Stout, M. D.
Negro male, 39 years.

Admitted on January 25, 1960, for an abdominal mass found accidentally on routine examination by private physician.

Past History: 1942: Diabetes discovered by Army recruiting examination, since then under control.
1945: Admission with streptomycin and penicillin treatment for typhoid fever.
1951: Removal of a benign right kidney.

On admission the abdomen was flat with good muscular tone. A non-tender mass about 16 x 8 cm. and palpable in the hypochondria, fixed in the right upper quadrant.

X-ray of Bones: Old pulmonary tuberculosis.

Urinalysis: Normal function of both kidneys; distended pelvis and cortex right kidney.

Operation, Feb. 6, 1960: Incision from ilium, pubis and pubic symphysis down to Blaschko's limited symphysis in the transverse fold, a large retroperitoneal mass found and was forced by blunt and sharp dissection anteriorly to the base of the ilium. Attempting to free the tumor anteriorly and posteriorly, the parieties was removed. Inspection from within the perineal cavity disclosed that the tumor extended to the anterior abdominal wall almost to the midline and posteriorly to the true cecum. The tumor was removed piece by piece as far as possible, the portions of necessity had to be left behind. The tumor did not appear to arise from the kidney; however, neither kidney nor ureter could be adequately outlined.

Laboratory Findings: Numerous portions of tissue of cystic and honeycomb structure, weighing 290 gms. Cavity separated by delicate white membranes septa with smooth glistening, inner surfaces. Contents of clear mucous fluid.

Houston, Texas
June 4th, 1960.
Negro male, 39 years.

Admitted on January 25, 1960, for an abdominal mass found accidentally on routine examination by private physician.

Past History: 1942: Diabetes discovered by Army Recruiting examination, since then under control.
1945 to 1954: Pulmonary tuberculosis treated with streptomycin and pneumoperitoneum from 1952 to 1958.
1951: Removal of a calculus from right kidney.

On admission the abdomen was flat with good muscular tone. A non-tender mass about 16 x 8 cm. in diameter was felt in the right hypochondrium, fixed in the right upper quadrant.

X-ray of Lungs: Old pulmonary tuberculosis.

Renal Examination: Normal function of both kidneys, distended pelvis and calices right kidney.

Operation: Feb. 8, 1960: Incision 1 cm. below and parallel with 12th rib. Beneath the lumbo-dorsal fascia in the transversalis muscle, a large retroperitoneal mass was found and was freed by blunt and sharp dissection anteriorly down to the brim of the pelvis. Attempting to free the tumor anteriorly and superiorly, the peritoneum was entered. Palpation from within the peritoneal cavity disclosed that the tumor extended on to the anterior abdominal wall almost to the midline and posteriorly to the vena cava. The tumor was removed piece by piece as far as possible, but portions, of necessity had to be left inside. The tumor did not appear to arise from the kidney, however, neither kidney nor ureter could be adequately outlined.

Laboratory Findings: Numerous portions of tissue of cystic and honey-combed structure, weighing 290 gm. Cavities separated by delicate white membranous septa with smooth glistening inner surfaces. Content is clear serous fluid.
This 38-year old woman who was in good health noticed a "lump" in the left upper abdomen 6 months prior to admission. During the interval, she thought that the mass had grown slightly larger. She had no pain, gastrointestinal disturbance, weight loss, or other symptoms referable to the mass. A smooth, round, non-tender mass was palpable in the left upper quadrant extending 8 cm. below the costal margin. It was described as having the contour of an enlarged spleen.

A hematologic consultant reported no evidence of blood dyscrasia.

Roentgenograms of the chest and abdomen were negative. An extrinsic mass pressing on the greater curvature of the stomach was found in the G.I. series. At operation, a large cystic mass was found behind the splenic flexure of the colon, anterior to the pancreas and inferior to the stomach. The normal-sized spleen lay above and lateral to the mass.

The mass was movable and shelled out relatively easily. No evident attachment to the bowel or pancreas was found. Its chief blood supply seemed to be from the retroperitoneum. The specimen was a roughly globular cystic mass 12 cm. in diameter. Approximately half was covered by a smooth membrane, the remainder by tags of loose fibrous tissue.

It was a multiloculated cyst with cavities varying from 0.5 to 4 cm. These were filled with clear fluid, bloody fluid and slightly gelatinous fluid. Several were filled with finely granular or papillary pinkish-tan tissue.
This 60 year old male was admitted to St. Agnes Hospital, Baltimore in June, 1959. He had partial bowel obstruction and a palpable abdominal mass. Chest x-ray and other examinations were negative. At laparotomy, three large circumscribed brownish tumors, varying from 5 to approximately 10 cm. were found, all located in the omentum. These were resected and the slides are from one of these tumors. Following operation, he did very well and is still feeling well. Chest x-rays are still negative and there is no evidence of bone involvement. Inspite of his not having any complaints, a laparotomy was again done in February of 1960 because of a recurrent palpable abdominal mass. The surgeon found the abdomen studded with metastatic tumors which were in peritoneum, visceral and parietal, mesentery and omentum.
This male patient was 34 years of age when first admitted to Henry Ford Hospital with a large epigastric mass and a destructive lesion in the right ilium and ischium. He had had pain and limitation of motion in the right leg and hip off and on for 10 years, the initial episodes being associated with trauma. Abdominal exploration had been done elsewhere two years previously. An operative diagnosis of hemangioma of the pancreas was made but biopsy was not done because of excessive bleeding. At this time the pelvic lesion was discovered and 1020 roentgens of 200 KV therapy was given to each of four upper abdominal fields and three fields over the right hip. Two subsequent courses were given to the right hip and one (with only 2 fields) to the abdomen in the succeeding year.

On the occasion of this admission, exploration of the right hip was undertaken but biopsy was not attempted because of hemorrhage. The patient was seen at very irregular intervals during the next 15 years but in 1954 it was noted that x-rays showed considerable calcification of the pelvic lesion.

In 1959 the patient was readmitted with a history of daily hemoptysis for 8 months and a 20 pound weight loss. There was swelling of the right thigh with the appearance of skin hemangiomas and a bilateral bloody pleural effusion. X-rays showed bilateral pulmonary lesions with no change in the bony lesions since 1954. Twenty-three hundred roentgens of cobalt therapy was given to the chest and 840 over the hip. Treatment was stopped at this point because of rapid progression of the disease. The patient was discharged to be admitted shortly afterwards in acute congestive heart failure. He died 3 days after admission. Autopsy showed a large retroperitoneal tumor readily separable from viscera. Metastases were present in the lungs, liver, kidneys, lymph nodes, skin and subcutaneous tissue of the right thigh and skull. Tumor was found in the pelvis only on microscopic examination.
Male, 62 yrs. old. In 1952, he had frontal headaches and this led to the finding and removal of a large (7 x 6 x 5 cm.) tumor attached to the meninges in the right frontal area. This was greyish-pink and fleshy with areas of hemorrhage and necrosis. His symptoms recurred, and the second operation in 1957 revealed considerable residual tumor. Three masses, 6, 4 and 5 cm. in diameter respectively were removed (Slide A is from this material).

He has remained symptom-free as far as the head is concerned (1959) but recently developed pain and swelling in the abdomen. The surgeon who explored him was surprised to find an enormous mass in the gastrocolic and great omentum which he was able to resect along with the transverse colon. It was about 28 x 20 x 15 cm. and weighed approximately 3000 grams. The outer rim was viable, greyish-pink, fleshy tissue but the bulk of the central portion was filled with necrotic tumor and blood clot (Slide B from this material).
A 53 year old white housewife was first seen at the Henry Ford Hospital on 3-28-59 complaining of weakness, easy fatiguability, dizziness and blurring of vision with several bouts of fainting. Past history revealed the patient had had an abdominal tumor removed on four previous occasions (1943, 1947, 1948, 1956). In addition, there had been a vaginal hysterectomy and repair of cystocele and rectocele in 1946. The tumors had been diagnosed as lymphosarcoma, fibrosarcoma, neurofibrosarcoma, and fibromyxosarcoma by different observers. The pathological diagnosis on the hysterectomy specimen was chronic cervicitis and ovarian cyst.

In addition to the surgical removal of the tumors, she had had a number of courses of x-ray therapy utilizing the 200 kilovolt machine. The first was in 1944 at which time she received a total of 4800 roentgens in air to the abdomen divided between four anterior and four posterior parts. In 1945, she received 950 roentgens in air to the right and left upper quadrant, 1800 roentgens in air to the right upper quadrant in 1947 and 700 roentgens in air to the right and left upper quadrant in 1948.

Physical examination on admission revealed multiple scars in the skin of the abdomen, but no palpable masses could be felt. A hard, smooth, slightly tender mass was felt laterally and anteriorly on rectal examination. This was considered to be extrinsic. IVP revealed good function of both kidneys. The roof of the bladder was deformed by a mass in the left mid-pelvis, measuring about 9 cm. Lateral film of the abdomen revealed a mass anterior to the dorsal spine. Chest x-ray, bone survey and routine laboratory examination were negative. On 5-4-59 the abdomen was explored and a retroperitoneal mass was located in the left lower quadrant anterior to and displacing the left ureter posteriorly. The tumor was attached by numerous vascular pedicles to the sigmoid mesocolon from which it was removed by sharp dissection.

The largest specimen was 12 x 10 x 5 cm., weighing 280 grams with a lobulated, rubbery, fish flesh color. A number of cysts, containing clear fluid, were present throughout the specimen. Submitted separately were a number of moderately soft, round, red portions of tissue representing fragments removed from the sigmoid colon.

Sections are from the retroperitoneal tumor, removed in 1959.
44-year old colored male with a huge tumor between the leaves of the mesentery of the jejunum. The tumor was 20 cm. in maximal diameter, apparently encapsulated, and on cross section showed a whitish, glistening stroma with areas of hemorrhage and degeneration. The slide represents tumor in association with the adjacent bowel as well as a portion from the mass itself.
Male, age 39. The patient stated that he has had an enlarged abdomen for 15 years. Because of persistent cough, weight loss and weakness for 4 months, he was worked up from the standpoint of pulmonary disease. In regard to his enlarged abdomen, the patient stated that this did not bother him since he thought "everyone was that way."

X-rays of the chest were interpreted as showing some fine linear fibrosis which was thought to be within normal limits for the patient's age. A GI series and flat plate of the abdomen showed a mass in the lower quadrant which displaced the bowel upward and posteriorly. Barium passed through normally.

The patient's chest symptoms improved and so it was elected to explore his abdomen. The surgeon described the tumor as being adherent to the omentum in multiple sites with apparent large vascular communication between tumor and omentum. The principal pedicle entered the mesentery of the jejunum. When this was ligated, no sign of residual tumor was apparent.

Gross Description: The specimen consists of a very large lobulated tumor which weighs 5 lbs. The outer surface is covered by a thin translucent membrane that contains numerous large and small blood vessels. The contour of the tumor is distinctly encephaloid, there being multiple convolutions and large nodules of varying size having a rubbery consistency. The cut surface shows numerous golden yellow areas and other zones which appear more fleshy. Focal hemorrhage has occurred in a few points.

Following the original operation, the tumor has recurred in multiple nodules in the peritoneal cavity and in the abdominal wall in May 1959, approximately 7 months following the original operation.

Chief Complaint: Cramps in abdomen, associated with a mass.

Present Illness: Two months ago, patient noted abdominal cramps that would come and go, about 10 minutes after eating, and at that time he felt a mass in the middle of his abdomen, below the umbilicus. Since then, the tumor has increased markedly in size, especially in the past month. He has also noticed belching. No previous operations. He was injured in the groin with a plow handle 30 years ago, and has had a hernia since in this area.

Family History: Mother may have died of cancer at age 81, patient not sure.

Review of Systems: Negative.

Physical examination: Weight 130 lbs. No weight loss in last six months, he says. Years ago, he weighed 143 lbs. Neck, chest: Negative. Abdomen: Shows a large hernia in the left groin, and there is a large bulge between the symphysis pubis and the umbilicus, indicating an abdominal tumor. A small tumor is palpated in the right groin, which feels like a lipoma. On palpation the tumor, which is in the midline, seems to have a sessile origin posteriorly, possibly in the posterior peritoneal region. The mass measures 6 x 4 cm.

Operation: The surgeon removed a large mass measuring 7 x 10 x 7 cm. in the mesentery of the small bowel and attached to it was a portion of small intestine, apparently the distal ileum. There was 5 cm. of normal looking mesentery between the tumor in the mesenteric border of the ileum all around. The cut surface of the tumor was yellowish-white, rubbery in consistency, well circumscribed, but not encapsulated, and there is some whorled appearance to the surface. Weight 420 grams.

Serology, urinalysis, blood count, all normal.
A 58 year old female who had radium therapy on two occasions for fibroid uterus. The first was given in 1940 and the second in 1949. In addition to the radium therapy, she had external radiation in 1941. She developed pain in the left lower quadrant in February 1959 and physical examination revealed a mass in the retroperitoneum. She was explored and a tumor 15 x 20 cm. was found in the mesentery of the small bowel. The tumor was not resectable and a small portion was removed for study.

Neither ovary nor uterus were described in the operative record but only tumor masses which resulted in a frozen pelvis. A uterine curetting was not diagnostic. This patient had subsequently died outside of the hospital, and no autopsy was performed.

The radiation therapy consisted of 1600 mm. hours of radium and 180 r of external radiation, followed one year later by an additional 1600 mm. hours of radium and 172 r of external radiation.
First Presbyterian Hospital admission of a 72-year old white male, admitted with the chief complaint of an abdominal mass of 14 months' duration. The mass had been felt by the patient at which time he consulted an outside physician who diagnosed the mass as an enlarged spleen. Since that time, the mass had progressively enlarged until the patient thought it should be investigated. There was no history of abdominal trauma or excessive alcoholic intake. He denied nausea, vomiting, hematemesis, pain or tenderness, jaundice, change in bowel habits, melena, weight loss or weight gain, weakness, malaise, indigestion or symptoms of venous congestion in the legs.

Physical examination was within normal limits except that a large asymmetrical, firm, non-tender, non-nodular mass in the left upper quadrant was palpated. The mass extended from above the rib edge to the umbilicus and laterally to the crest of the ilium and posterior axillary line. The mass was dull to percussion, non-movable and did not appear attached to the abdominal wall or organs. It was felt at this time that this mass did not represent an enlarged spleen.

The patient underwent exploratory laparotomy at which time an extremely large tumor mass was found in the retroperitoneal area which was adherent to the left kidney, tail of pancreas and colon but did not originate from any of these sites.

The mass measured 23 cm. in diameter. The external surface was encapsulated, greyish-tan, smooth, with underlying reddish-grey streaked areas. Sections through the mass revealed a large cystic tumor, containing numerous lakes of liquid blood and blood clots surrounded by streaky soft friable, greyish-brown tissue. At the edge of the tumor mass, an irregularly-outlined area of white, glistening, soft, homogeneous tissue was noted. These are sections from the large tumor taken at the periphery.
Female, age 41.

1954: Removal of extensive condylomata acuminata from external genitalia, present on vulva, with a peri-urethral rosette. Also extended into vagina. Patient was pregnant. Later, during delivery, the urethra everted and revealed condylomata.

1955: Cystoscopy revealed sloughing lesion resembling carcinoma over entire floor of bladder.

1957 and 1958: Progression of disease, with back pressure and ascending infection of kidneys. Removal of additional "papillomatous lesions" from vulva, bladder, and urethra.

1959: Right nephrectomy: Hydro nephrosis, chronic pyelonephritis. Only 5 cm. of ureter present.

1960: Total cystectomy, urethrectomy, bilateral ureterectomy.

Sections submitted are from urinary bladder, ureter, and urethra.
Please write your diagnoses and mail promptly to Dr. R. Lattes

Case 1  Lymphangioma
Case 2  Primary adenocarcinoma (extra-ovarian) in the mesentery  - See comment on reverse side
Case 3  Lymphangiosarcoma  - See comment on reverse side
Case 4  Malignant tumor of sympathetic nervous system  - See comment on reverse side
Case 5  Hemangiopericytomas, (2 independent primary tumors)
Case 6  Hemangiopericytoma
Case 7  Desmoid
Case 8  Malignant fibro-xanthoma  - See comment on reverse side
Case 9  I don't know  - See comment on reverse side
Case 10  Mixed malignant mesodermal tumor  - See comment on reverse side
Case 11  Primary tumor of renal amlage origin  - See comment on reverse side
Case 12  Carcinoma, also extensive squamous metaplasia  - See comment on reverse side

Signature not necessary.
Case 2

Case 3
It is impossible to say for sure. Is this possibly a malignant vascular tumor of mesothelial origin? I have seen two similar cases in young girls both of whom died. It was highly radiosensitive in at least one case since the patient died of the effects of radiation without residual tumor.

Case 4
Derivation from the sympathetic nervous system would explain the radiosensitivity. It has a mixed pattern similar to what we have seen in the mediastinum. The possibility of an ependymoma was considered, but was thought improbable by Dr. Sarah Luse.

Case 5
I have seen this case before. It became malignant under my very eyes after I found out about the follow-up.

Case 6
I need more sections, special stains, and one more month to think about it.

Case 7
Bill Ober has other names for it.

Case 11
It may come directly from the kidney regardless of the operative findings. I see very little evidence that it is malignant, but I never trust myself with tumors of this size with areas of necrosis and zones of atypical epithelial proliferation.

Case 12
I would expect no metastases at the present time. This will eventually become invasive squamous cancer.