INTERNATIONAL ACADEMY OF PATHOLOGY

South African Division

Short Course No.11.

DISEASES OF KIDNEY BLADDER AND PROSTATE

Dr F Kash Mostofi

Cape Town, S. Africa
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SHORT COURSE NO. 11.

DISEASES OF KIDNEY, BLADDER AND PROSTATE.

Moderator: Dr. F. Kash Mostofi,
Armed Forces Institute of Pathology,
Washington D.C.


CASE NO. 1: (1431135)
50 year old male with symptoms of prostatism. Rectal examination showed stony hard prostate.

CASE NO. 2: (1502469)
75 year old male with soft enlarged prostate.

CASE NO. 3: (1501163)
67 year old male presented with symptoms of obstruction. The clinical impression was benign prostatic hyperplasia.

CASE NO. 4: (1562257)
90 year old male with urinary retention; clinically enlarged nodular prostate.

CASE NO. 5: (1494471)
72 year old female with bladder tumour.

CASE NO. 6: (1554562)
46 year old female with two weeks history of haematuria; cystoscopy revealed papillary lesion in dome of bladder.

CASE NO. 7: (1562629)
40 year old male with bladder tumour.

CASE NO. 8: (1531813)
37 year old male with longstanding history of renal stones.

CASE NO. 9: (1556386)
18 year old female who developed flank pain and haematuria during pregnancy.

CASE NO. 10: (Supplied by Dr. R. Kaschula)

An 11 month old infant weighing 7.8 kilograms presented with progressive abdominal distension developing over some months. A large tumour arising within the right renal capsule and together with the kidney weighing 1.4 kilograms was resected but residual tumour was left adherent to the inferior vena cava.
INTERNATIONAL ACADEMY OF PATHOLOGY.
- South African Division -

SHORT COURSE NO. 11 - Diseases of Kidney, Bladder and Prostate.

Moderator:  Dr. F. Kash Mostofi,
            Armed Forces Institute of Pathology, Washington D.C.

SUBMITTED DIAGNOSES:

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N.B. Each participant should complete and return this sheet anonymously to the Secretary (Dr. R. Kaschula) at Red Cross Children's Hospital, Rondebosch 7700 to reach him not later than 2.00 p.m. on Monday 12th July.
INTERNATIONAL ACADEMY OF PATHOLOGY

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SHORT COURSE NO. 11

KIDNEY, BLADDER AND PROSTATE.

LIST OF DIAGNOSES

and

DISCUSSION OF CASES

DR. F.K. MOSTOFI

Armmed Forces Institute of Pathology,
Washington, D.C.

LIST OF DIAGNOSES.

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GRANULOMATOUS PROSTATITIS.

CASE NO. 1: (1431135) Contributed by Memorial Hospital, Orlando, Florida.

50 year old male with symptoms of prostatism. Rectal examination showed stony hard prostate.

The architecture is markedly altered by many cellular areas which have a nodular appearance. The nodules are fairly well defined but they are sometimes confluent. Almost invariably either the remnants of a duct or degenerating corpora amylacea are seen somewhere in the nodule but usually in the center. There is infiltration with lymphocytes and plasma cells and macrophages.

Many of these cells have vacuolated cytoplasm but the cells occur in sheets and there is no acinar formation. Occasional polymorphonuclear leukocytes are seen and sometimes these occur in ductal lumina and at other times they form small abscesses.

Residual elements of acinar epithelium are seen and some of these are somewhat exuberant.

DIAGNOSIS: Granulomatous prostatitis

The first question is whether we are dealing with an inflammatory or neoplastic process. Many of these are sent in because (1) clinically the prostate is stony hard, leading the urological surgeon to feel that he is dealing with a carcinoma and (2) the pathologist, seeing the clear cells, is misled to diagnose carcinoma or seeing the pleomorphic cell population, suspects a Hodgkin's.

This case represents one pattern of reaction. In other instances sheets of clear cells are seen with small vesicular nuclei. In still others the cells are large with granular eosinophilic cytoplasm. Occasional entrapped acini may be seen which may be small. Several features are helpful in the correct diagnosis. There is usually an admixture of cells, rarely, if ever, true acinar formation, invariable relationship of the lesion to a duct with partial or complete loss of epithelium. Often there are fragments of degenerating corpora amylacea and multinucleated giant cells.

It should be emphasized that granulomatous prostatitis is not malignant, its presence does not necessarily rule out a carcinoma. We have seen several instances of carcinoma—occasionally intermingled with granulomatous prostatitis and sometimes independently of it.

REFERENCES.


CASE NO. 2: (1502469)  Contributed by Dr. W. W. Christman, Sunbury Community Hospital Sunbury, Pennsylvania

75 year old male with soft enlarged prostate.

There is massive infiltration of both prostate and the bladder neck with uniform small cells. The nuclei are quite irregular ranging from round to truncated. They are dark staining and except for occasional vacuoles, are nondescript. Altho a few cells have vacuolated cytoplasm, for the most part the nuclei are almost naked. There is no distinct pattern but occasionally they occur in clumps separated from each other by less cellular areas. The cells are diffusely infiltrating the prostate and bladder neck with compression and necrosis of muscle bundles. There is infiltration of vessel walls.

DIAGNOSIS: Malignant lymphoma of the prostate

The differential diagnoses are between lymphoma, severe chronic prostatitis and undifferentiated small cell carcinoma of the prostate.

In chronic prostatitis there is almost invariably involvement of ducts with either loss of integrity of the duct or squamous metaplasia, the infiltrate is rarely as massive but if so there may be follicle formation. There is no compression and degeneration of muscle bundles and infiltration of vessel walls.

In undifferentiated carcinoma of prostate the cells usually have some cytoplasm, the nuclei are also dense but the cells occur in columns, rows and almost invariably there is some glandular differentiation.

Patient had had a liver biopsy which had been diagnosed as lymphoma; however, when TUR was done on him for relief of obstruction, the question of an undifferentiated carcinoma of prostate was raised.

REFERENCE.

67 year old male presented with symptoms of obstruction. The clinical impression was benign prostatic hyperplasia.

In addition to glandular hyperplasias of various types, typical atypical, secondary and cystic, there are one large and 2 small nodules that are quite cellular. Instead of the usual double layer of cells, here a large number of acini are seen lined by piled up cells at times resembling basal cells and at other times transitional epithelial cells, each cell appearing to rest on the basal layer. Occasionally the basal cells and the usual acinar are seen side by side. All stages are present from essentially normal acini to acini that are completely replaced by this epithelium. The cells are fairly uniform, no nucleoli, nuclear vacuolization or giant cells are seen. At times there is a suggestion of squamous metaplasia. The glands range in size from small to large, oftentimes with ramifications. They are closely packed but the stroma is quite cellular.

DIAGNOSIS: Basal cell hyperplasia (fetalization) of the prostate.

The differential diagnosis is between metaplasia, transitional cell carcinoma or a carcinoma derived from basal cells. Transitional or squamous cell metaplasia is a common finding in prostates most often as a result of infarction, less frequently secondary to inflammatory infiltration. Metaplasia secondary to infarction is usually seen adjacent to an area of infarction or fibrosis in a hyperplastic prostate. Metaplasia secondary to inflammation is usually associated with a prostatic duct and there is inflammatory cell infiltration which involves the acini secondarily. Neither situation prevails here.

Transitional cell carcinoma of the prostate is usually secondary to a tumor in urethra or bladder neck. Primary transitional cell carcinomas of the prostate almost invariably arise from ducts and the cells usually show considerable anaplasia. No anaplasia is seen in the cells and the involvement seems to be principally that of acini and not the ducts. Secondarily, the cells do not show any evidence of malignancy.

We had considerable discussion about whether this was benign or malignant. Several of the WHO consultants reviewed the case and all agreed it was benign. The patient is living and well 2 years later. The case resembles the picture described by Obendorfer in 1931 and more recently used in our department as fetalization of the prostate. The lesion is believed to be benign.
CASE NO. 4: (1562257)

Contributed by Dr. Nichols
VAH, Portland, Oregon.

90 year old male with urinary retention; clinically enlarged nodular prostate.

The section shows a very cellular mass covered in areas by transitional epithelium of variable thickness. Downward proliferation of epithelium is frequently seen having the appearance of von Brunn's nests. The mass itself consists of anastomosing cords and fronds, many of which seem to be prolongations of superficial von Brunn's nests. They are supported by delicate fibrovascular stroma. The cords are fairly uniform and consist of multi-layered elongated cells arranged perpendicularly to the supporting stroma. In the center of the cords the cells resemble transitional epithelium while at the periphery they have the appearance of basal cells. No cellular anaplasia is seen and only rare mitotic activity. There is whorled pattern in the "center" of many of the cords suggesting squamous metaplasia. In others there is a small lumen.

DIAGNOSIS: Inverted papilloma.

The case was selected because many of these are sent in as infiltrating transitional cell carcinoma, grade II. This is undoubtedly due to massive cellularity and misinterpretation of the inward growth of papillary fronds which simulate infiltrating carcinoma. They are distinguishable from infiltrating carcinoma by the fact that in the latter the cells are definitely anaplastic and the advancing border consisting either of broad front or tentacular growth is irregular, and the cell clusters are of varying shapes and sizes. In many instances there is some inflammatory cell infiltration. The gross appearance is also different from carcinoma in that it consists of a pedunculated or sometimes sessile mass with smooth surface. The lesion resembles inverted papilloma of nasopharynx. Almost all reported cases have had a benign course; however, we have seen instances in which there is associated papilloma and in several cases cellular anaplasia. We have therefore at times made the diagnosis of inverted papilloma with malignant change.

REFERENCES.

BLADDER, CARCINOMA TRANSITIONAL - AND SPINDLE CELL,
GRADE II, PAPILLARY AND INFILTRATING.

CASE NO. 5: (1494471) Contributed by Dr. Welland Hause
St. Mary's Hospital, Decatur, Illinois.

72 year old female with bladder tumor.

Some fragments consist of definite papillary and infiltrating transitional cell carcinoma. Several fragments, however, present a rather edematous stroma supporting sheets and groups of spindle cells which are sometimes interlacing. One or two small islands of distinctly epithelial cells are seen and in areas transitions between epithelial and spindle cells is quite apparent.

DIAGNOSIS: Bladder, carcinoma transitional - and spindle cell, grade II, papillary and infiltrating.

The differential diagnosis here is between a carcinoma with spindle areas, carcinoma with desmoplastic reaction of the stroma and carcinosarcoma. In carcinosarcoma of bladder we have insisted that the sarcomatous elements consist of identifiable soft tissue tumor, e.g. leiomyosarcoma, rhabdomyosarcoma, osteochondrosarcoma and that these elements be distinctly neoplastic. This would be a collision tumor. No definite sarcomatous elements are seen in this instance.

In carcinoma with desmoplastic reaction the carcinoma is usually more anaplastic, the 2 components are intimately associated with each but there is a distinct line of demarcation between the two. In most instances the desmoplastic reaction falls short of a definite malignant transformation; however, occasionally it is definitely sarcoma similar to the picture seen in uterus where both endometrial glands and stroma are malignant.

REFERENCES.


NEPHROGENIC ADENOMA OF URINARY BLADDER.

CASE NO. 6: (1554562) Contributed by Dr. D.W. Dain, St. Joseph's Hospital Albuquerque, New Mexico.

A 46 year old female with a history of hematuria of two weeks duration. Cystoscopy showed a papillary lesion of dome of bladder.

The tumor presents an unusual papillary appearance in which the epithelial cells seem to be forming large and small tubular structures and acinar spaces. The cells vary from flattened to high cuboidal. Many of the cells have a hob nail appearance. The cytoplasm varies from scanty to abundant and from amphophylic to vacuolated. There is some cellular anaplasia but no definite evidence of malignancy is seen.

DIAGNOSIS: Nephrogenic adenoma of urinary bladder.

The case was selected for several reasons. It illustrates an adenoma in which the cells form structures suggesting renal tubules. These are seen mostly in the trigone area and have been designated as nephrogenic adenoma because this is the area of the bladder which is mesonephric in origin. The present case, however, was not from trigone. The location in the dome raises the possibility of a urachal carcinoma; however, the tumor is entirely mucosal and not intramural and the histology is not that of urachal carcinoma which is usually mucinous adenocarcinoma, altho transitional cell carcinomas have also been seen.

In many of our patients with this lesion there is a history of trauma to the bladder 4 - 6 years prior to the development of the lesion. The behavior of these tumors is of interest. They tend to recur. We have seen a number of them progress to adenocarcinoma, mesonephric type. The distinction between nephrogenic adenoma and mesonephric adenocarcinoma is at times difficult. The most reliable criterion is definite deep invasion of the wall. Some of these will show areas of transitional and mucinous adenocarcinoma.

Our concept of the genesis of this lesion is that it is a manifestation of the potentiality of vesical epithelium which can become squamous, glandular or tubular. So altho we do make a diagnosis of nephrogenic adenoma, we alert the urological surgeon to the malignant potential of the tumor.

REFERENCES.


40 year old male with bladder tumor. The surface epithelium shows some proliferative change but no anaplasia. The wall of the bladder is heavily infiltrated by a tumor which is rather cellular. The cells are large polyhedral with abundant granular or vacuolated cytoplasm surrounding round or oval mostly vesicular nuclei with delicate peripheral distribution of chromatin. The cells vary considerably in size, shape and staining. Occasional mitoses are found. A second cell type is seen either under the surface epithelium or in relationship to vascular spaces. These are small, densely staining nuclei with little or no cytoplasm. Viewed by themselves these cells suggest neuroblastoma or an undifferentiated carcinoma. The characteristic feature of the tumor is the rich endocrine vascular pattern. Occasionally large sinusoidal spaces are present.

**Diagnosis:** Bladder - Paraganglioma.

The differentiated diagnosis is between a carcinoma and paraganglioma. In paraganglioma the cystoscopic appearance is almost invariably that of a sessile tumor with intact normal appearing overlying mucosa. Microscopically the growth pattern is the most important distinguishing feature of this tumor from carcinoma. Helpful findings are absence of any surface involvement and the presence of neuroblastoma like areas.

These tumors occurs in all ages (14 to 78 years). The majority have painless hematuria. Hypertension is frequent especially during micturition. About 20% recur and about 5% show metastasis. The diagnosis of malignancy is oftentimes difficult. The following criteria are helpful: vascular and lymphatic invasion, local spread deep in bladder wall or to adjacent organs with destruction of muscle layer. The tumor may recur several years later.

**References.**

CASE NO. 8: (1531813) Contributed by Dr. R.M. Costello Westmoreland Hospital Association, Greensburg, Pennsylvania.

37 year old male with longstanding history of renal stones.

We have little information except that there was a stone surrounded by a yellowish necrotic tissue.

Microscopically, there are sheets of uniform cells with foamy or eosinophilic cytoplasm surrounding a small vesicular nucleus. Scattered throughout and often forming abscesses are collections of polymorphonuclear leucocytes. There is a pseudocapsule and the kidney shows evidence of chronic pyelonephritis.

DIAGNOSIS: Xanthogranulomatous pyelonephritis.

The presence of foam cells on these cases often leads to misdiagnosis of carcinoma but both the gross appearance and the histology are characteristic; grossly, the lesion resembles a corpus luteum. Microscopically, the pale or granular cells, some of which may be derived from epithelial cells, occur in sheets without any evidence of tubular arrangement. There is little or no stroma. The lesion progresses to fibrosis.

Occasionally, it is extremely difficult to differentiate between a xanthogranuloma and a carcinoma. The gross appearance with a wavy yellowish border and central cavity is most helpful. Microscopically, absence of a fibrovascular stroma supporting the foam cells in a distinct pattern as seen in renal cell carcinoma is characteristic for xanthogranulomatous pyelonephritis. A word of caution is in order in that rarely carcinoma and xanthogranulomatous pyelonephritis may be found in the same kidney.

As far as distinction between xanthogranulomatous pyelonephritis and malakoplakia is concerned, the cells may have more granular cytoplasm in malakoplakia but it is the identification of Michaelis Gutman bodies which makes the diagnosis of malakoplakia.

In the kidney, xanthogranulomatous pyelonephritis and malakoplakia are usually associated with stones, infection with B proteus or E. coli and there is usually some obstruction. The lesion has been reported in patients from 1 month to 77 years, but they are mostly in the 4th - 6th decade.

REFERENCES.

ANGIOMYOLIPOMA WITH PREDOMINANT LEIOMYOMATOUS ELEMENTS.

CASE NO. 9: (1556386) Contributed by Dr. J.H. Norton, Jr.,
Monmouth Medical Center,
Long Branch, New Jersey.

18 year old female who developed flank pain and hematuria during pregnancy.

Grossly, the kidney weighed 1080 grams and measured 14 x 15 x 10 cm. The
tumor occupied the upper pole of the kidney and it measured 15 x 10 cm in
size. The tumor was gray white and whorled in appearance, firm in consist-
ency and it had cystic areas lined by thin blue membrane. There was a large
blood clot and hemorrhage over the pelvis.

Histologically, the tumor consists almost entirely of crisscrossing bands of
smooth muscles. There is some variation in size, shape and staining of cells
and nuclei. Occasional large nuclei and mitoses were seen. Scattered through-
out are nests of mature fat cells and a few large vessels, some with very cellu-
lar walls; others with hyalinization of the wall. In association with one area
of hemorrhage the tumor is very cellular, but here again both vascular and fat
cell elements are present.

DIAGNOSIS: Angiomyolipoma with predominant leiomyomatous elements.

The case was selected because such cases are often sent in with the diagnosis
of leiomyosarcoma or liposarcoma.

The problems in the diagnosis of these lesions relate chiefly to the frequent
atypicality of the smooth muscle cells or the fat cells. These not infrequently
are pleomorphic and hyperchromatic and occasionally show some mitotic activity
as well as giant mononuclear and multinucleated forms. Thus, the tumor not
infrequently is interpreted as sarcoma. Necrosis is a frequent finding and
acute hemorrhage is a common feature leading to nephrectomy. Also, the lesions
are often multiple and bilateral, giving the impression of metastasis. We have
seen a number of these with identical lesions in regional lymph nodes. However,
we are unaware of a well documented example of malignant behavior with convinc-
ing metastasis, and most observers feel such cases represent multicentric
lesions. Patients with the tuberous sclerosis complex usually have histologic-
ally identical lesions, but these are less likely to be symptomatic, in spite of
the greater likelihood of their having multiple, bilateral lesions. There is
some evidence that renal angiomyolipoma per se may represent a forme fruste
of tuberous sclerosis.

The angiomyolipoma or renal hamartoma predominates in females by over 2:1 and
the average age is 40-42 years. If the lesion is untreated and acute hemorr-
hage does not necessitate surgery, the course is protracted with patients living
as long as 18 years before the tumor eventually completely erodes or
destroys renal function.

REFERENCES.


149-54, 1975.

3. Farrow, G.M., Harrison, E.G., Utz, D.C., and Jones, D.R. Renal
angiomylipoma. A clinicopathological study of 32 cases. Cancer 22:
564-570, 1968.

4. Price, E.B. Jr. and Mostofi, F.K. Symptomatic angiomyolipoma of the

CASE NO. 10: Contributed by Dr. R. Kaschula, Red Cross War Memorial Children's Hospital, Cape Town, South Africa.

11 month old African male infant weighing 7.8 kilograms, having had progressive enlargement of abdomen over a period of some months. The kidney and the tumor weighed 1.412 Kg. Multiple cysts were seen on cut surface.

The slide shows an infantile kidney in which two distinct lesions are seen; one of these consists of interlacing bands of spindle-shaped cells which are uniform. Mitoses are infrequent. In areas the tissue is edematous—in one area it is hyalinized. Scattered throughout are remnants of primitive renal tubules and occasional glomeruli. These areas have the appearance of renal dysgenesis. A number of thick-walled vessels are present. The lesion involves peripelvic fat and shows interdigitation with renal parenchyma. Some of these are associated with fetal nephrons.

Adjacent to one of these interdigitations is a very cellular lesion. This, too, consists of interlacing bands of spindle-shaped cells. The cells are quite uniform but mitotic figures are numerous. There are no residual nephrons here. Scattered throughout are a number of thrombosed blood vessels occasionally with necrosis of the wall. Several foci of hematopoiesis and some areas of hemorrhage are also seen. Although in one area the two lesions seem to blend, for the most part the cellular area is distinctly outlined.

DIAGNOSIS: Mesoblastic nephroma — Leiomyomatous hamartoma.

In addition to the above terms the lesion has been described as fetal mesenchymal hamartoma, leiomyoma, and fetal hamartoma. Although the lesion has been known for over 30 years it is not infrequently confused with Wilms' tumor. Some years ago we reported on 20 cases—17 of which had been sent to us as Wilms'. Sixteen of these were surgical specimens and two of the patients had died as a result of treatment. These tumors have a characteristic gross appearance: they appear to be circumscribed, grayish white to yellowish and firm. The cut surface has a whorled appearance. Areas of necrosis and hemorrhage are absent. The tumors usually assume a large size.

Microscopically, too, the picture is characteristic: interlacing bands of spindle-shaped cells with little or no cellular anaplasia and with varying degrees of mitotic activity. There are usually islands of normal or dysgenetic nephrons. Scattered cysts and islands of cartilage and foci of hematopoiesis are frequent. Almost invariably the tumors originate from the medullary portions and may involve the kidney segmentally.

The genesis of the lesion is not established. It may represent a variant of segmental dysgenesis, it may represent a hamartoma, it may represent a benign neoplasm of metanephric blastema and thus related to the malignant counterpart of the tissue—namely, Wilms' tumor, or a maturing Wilms' tumor. Along with many others we have warned against treating these patients as if they had Wilms' tumor. However, in the last three years we have had three instances in which elsewhere in the kidney there was either a definite Wilms' tumor or a sarcoma—thus complete excision and adequate sampling is absolutely essential.

REFERENCES.


