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ROENTGEN DIAGNOSIS
HEAD


Six cases of histologically proven hemangioblastomas are reported.

The importance of vertebral angiography and subtraction roentgenography is emphasized.

Four out of 6 cases were definitely related to Von Hippel-Lindau disease of retinal angiomas with high familial incidence. Five of the 6 cases were cerebellar hemangioblastomas causing cystic compression of the medulla, whereas the 6th patient had the same angiomatous lesion located in the medulla.

The authors emphasize the classification of this disease as a complex phacomatoses, ectodermic and congenital in origin and often multiple in form. On the other hand, they raise the question as to how to classify the epidural and subdural hemangioblastomas of cauda equina. Their answer is: These must be considered as isolated cases.—Jirair N. Sarian, M.D.

Rho, Yong-Myun. Von Hippel-Lindau’s disease: a report of five cases. Canad. M. A. J., Aug. 9, 1969, 101, 135-142. (From: Department of Pathology, General Hospital, St. John’s, Newfoundland, Canada.)

Postmortem study of 5 cases of von Hippel-Lindau’s disease is reported.

Three cases in the study are from 8 subjects affected by the disease in 5 generations of one family.

Hemangioblastomas were found in the cerebellum, the wall of the third ventricle, the spinal cord, retina and the anterior lobes of the pituitary gland. Multiple nonsuspective cysts were noted in the pancreas, kidneys, liver, spleen and prostate. These cysts were particularly numerous in the pancreas.

Other associated lesions were a cavernous hemangioma in the cerebrum, a hypernephroma, a phaeochromocytoma and a paraganglioma. Vitamin D-resistant rickets, another genetic disorder, was present concurrently in one family.—David Morse, M.D.

 Shapiro, William R., Williams, Guy H., and Plum, Fred. Spontaneous recurrent hypothermia accompanying agenesis of the corpus callosum. Brain, 1969, 92, 423-436. (From: Department of Neurology, The New York Hospital-Cornell Medical Center, New York, N. Y.; and the Cleveland Clinic Foundation, Cleveland, Ohio.)

Two patients with agenesis of the corpus callosum associated with recurrent attacks of hypothermia and behavioral retardation are reported.

The hypothermia closely resembles that induced in experimental animals by stimulation of the brain in the pre-optic anterior hypothalamic region.

It is proposed that accompanying the callosal agenesis are associated defects in the septal regions producing chronic subnormal body temperature; episodic hyperactivity of the “heat loss center” recurrently induces further falls in temperature. Because of the paroxysmal attacks of hypothermia, behavioral changes and slow electroencephalographic activity, it is believed that these patients have “diencephalic epilepsy.”—David Morse, M.D.

Cosnett, J. E., and Gibb, B. H. Tuberous sclerosis and cardiac arrhythmia in three Zulu patients. Brit. M. J., June 14, 1969, 2, 672-673. (Address: Dr. Cosnett, Principal Physician, Edendale Hospital, Pietermaritzburg, Natal, South Africa.)

Tuberous sclerosis is a rather uncommon condition characterized by epileptic seizures, mental deficiency, facial adenomas and congenital tumors of the eye and other organs, including rhabdomyomas of the heart and hypernephromas of the kidney. The condition gets its name from sclerotic patches which are found on the surface of the brain and within the lateral ventricles usually associated with the choroid plexus.

Roentgenographic studies of the skull usually show multiple small discrete areas of calcification throughout the brain substance. They may be seen in the region of the sella, the basal ganglion and, as noted above, in the choroid plexus. In addition, there are small oval islands of increased bone density due to hyperostoses of the inner table of the skull adjacent to lesions in the cerebral cortex.

The authors present 3 cases histories of patients with tuberous sclerosis and cardiac arrhythmia.

They conclude that cardiac arrhythmia associated with tuberous sclerosis consists of ectopic beats. The conduction defects may be at either atrioventricular or interventricular level. Presumably, these are due to some type of muscular defect in the heart, associated with the disease entity. They believe that closer cardiac investigations of patients with tuberous sclerosis would yield more examples of cardiac abnormality.—Richard E. Kniser, M.D.

Collard, M., and Linker, M. Étude sialographique d’un pseudo-kyste traumatique de la parotide. (Sialographic study of a traumatic pseudocyst of the parotid gland.) J. belge de radiol., 1969, 52, 136-139. (Address:
Dr. Michel Collard, C.G.T.R. Montigny-le-Tilleul, Belgique.)

Development of a traumatic pseudocyst of the parotid gland without stenosis of Stensen's duct can be considered unusual. Nevertheless, recognition of the underlying cause is essential to prevent complications such as a salivary fistula.

The authors report a case in which glass splinters caused facial cuts. The wounds were promptly sutured but 8 days postoperatively the parotid gland became enlarged and tender on palpation. Sialography disclosed a normal Stensen's duct. During the injection, however, a cyst in the lower pole of the parotid gland became visualized as it filled with contrast material. There were several radio-}

sures at the floor of the cyst suggesting the presence of fibrous material. A catheter was now inserted into the duct. Its free portion was attached to the buccal mucosa and kept in place for 5 days. Three weeks later the parotid gland appeared entirely normal.

Traumatic pseudocysts must be differentiated from retention cysts secondary to stenosis of Stensen's duct. A tear of parenchymal tissue without damage to the capsule causes blood and saliva to accumulate so that a pseudocyst forms. Retention cysts are lined with salivary epithelium, while the blood-containing pseudocyst is surrounded by fibrous tissue. Sialography is essential to demonstrate a patent Stensen's duct and fibrous material in the pseudocyst. When effective drainage can be established with a retained catheter, surgical measures become unnecessary.—E. Kraft, M.D.

Reid, J. M. Sialography. Australasian Radiol.,
May, 1969, 13, 148-160. (Address: Senior Radiologist, Auckland Hospital, Auckland, New Zealand [Retired].)

The author reviews his technique of sialography and goes on to detail his findings in various pathologic conditions of the salivary gland.

He uses a lacrimal duct cannula attached to a 3 cc. syringe and leaves this system in the Stensen's duct during the exposure of the roentgen-ray films. From 0.5 to 3 cc. or so is injected, depending on the size of the gland and whether overdistention of the gland is desired. He prefers ethiodol as contrast agent as it is nonirritating if extravasation outside the duct system occurs. Tangential anteroposterior and oblique lateral roentgenograms are routinely made for the parotid gland and oblique lateral roentgenograms are obtained for the submandibular gland. The procedure should not be done in the presence of acute inflammation or in cases of recent epidemic parotitis in adults.

The article is accompanied by a large number of excellent illustrations of roentgenographic reproductions and short descriptions of the various pathologic conditions.

This is a well organized review of the subject and will serve as an excellent reference for those of us who are occasional sialographers.—Everett H. Johnston, M.D.

NECK AND CHEST

Gros, Ch., Sacrez, R., Walter, J. P., and Grumbach, Y. La radiographie pulmonaire dans le syndrome de détresse respiratoire du prématuré. (Pulmonary radiography in the respiratory distress syndrome in the premature infant.) J. de radiol., d'électrol. et de méd. nucléaire, May, 1969, 50, 369-376. (From: Service Central de Radiologie, Clinique Infantile de Strasbourg, Strasbourg, France.)

The respiratory distress syndrome in the premature infant requires roentgen studies of the chest immediately after birth. Unfortunately, technical difficulties arise when the infant is kept in an incubator. Therefore, the authors apply a special incubator technique with the infant in a sitting position. The technical factors are 65 kv., 200 ma., 1/50 second, and 160 cm. focus-film distance. Rapid films and paraspeed intensifying screens are also used.

The resulting roentgenograms facilitate the recognition of hyaline membrane disease which occurs in 30 per cent of all premature infants. On the other hand, aspiration bronchopneumonia is more apt to develop in the fully mature babies together with pneumothorax or pneumomediastinum.

Other conditions, detectable with the incubator technique, are bronchopneumonia from faulty swallowing of the premature infant or from malformations of the esophagus and the upper respiratory tract, also the syndrome of Wilson and Mikity, massive hemorrhage, hiatus hernia, pneumothorax, and paralysis of the diaphragm.

Densitometric studies seem to be an interesting method for recognizing minute details. Incomplete expansion of the premature lung can lead to erroneous conclusions. Therefore, clinical confirmation is essential in all doubtful findings.—E. Kraft, M.D.

Goff, Anne M., and Gaensler, E. A. Hyper- ventilation syndrome. Respiration, 1969, 26, 359-368. (From: Thoracic Services, Boston University, Boston, Mass.)

Early diffuse pulmonary vascular disease must be differentiated from the hyperventilation syndrome which represents a nonspecific respiratory reaction to emotional disturbance most commonly seen in women and younger patients as a reflection of anxiety or anxiety neurosis. Hyperventilation itself may be a manifestation of high fever, encephalopathy or drug intoxication but the syndrome may be mistaken for asthma, migraine, petit mal or the syncopy of pulmonary hypertension.
A high index of suspicion is needed often times to make the diagnosis. The increased rate or depth of respiration leading to hypcapnia and acute alkalosis may not be evident as the respiratory alkalosis may be maintained without obvious hyperventilation.

Pulmonary vascular disease is also characterized by hyperventilation. Angiography and lung scanning are helpful to exclude large vessel disease; evidence of an enlarged physiologic dead space and enlarged arterial-end-tidal CO₂ difference reveal before radiography and cardiac catheterization early diffuse pulmonary vascular disease such as multiple small pulmonary emboli and primary pulmonary vascular disease.

A case of a 19 year old girl complaining of attacks of breathlessness of 3 years’ duration in which the pulmonary angiogram was normal is presented and the pathophysiology is discussed in detail.—John T. Underberg, M.D.


Barium sulfate and powdered tantalum have been used experimentally in laboratory animals to perform inhalation bronchography. These studies have demonstrated that both media can be safely employed. Barium sulfate has been demonstrated to produce only a mild benign foreign body reaction in the lungs characterized by small intralung granulomas and minimal deposition in lymph nodes without evidence of pulmonary fibrosis.

The advantages of barium sulfate as a bronchographic contrast agent are several: It produces excellent radiographic density; it is nontoxic and non-allergenic; it does not induce bronchial spasm; it will be cleared from the lungs in approximately 24 to 58 hours; it demonstrates the same abnormalities including the “wall sign” as iodinated media; and it does not interfere with radioactive iodine tests. As with any contrast agent, there is some mechanical obstruction temporarily and any barium sulfate reaching the respiratory bronchioles cannot be cleared because of the lack of cilia at this level. Tantalum has the advantage of not necessitating the use of methyl cellulose and provides a greater radiographic density with a smaller volume of contrast material.

Following anesthetization a Bennett respirator and its nebulizer were used to test the relative results of barium sulfate alone and barium sulfate following methyl cellulose inhalation as a bronchographic medium in dogs. Barium sulfate powder ranging in diameter from 1 to 55 microns with a uniform spherical-shape and methyl cellulose varying in size from 1 to 150 microns with a variable shape were utilized. The methyl cellulose viscosity varied between 1,500 and 4,000 centipoise. Methyl cellulose has been demonstrated to be nontoxic and produce only a transient mild foreign body reaction without fibrosis in the pulmonary tissue.

Barium sulfate inhalation alone necessitated the use of approximately 35 grams of barium sulfate and resulted in poor filling of the anterior and upper portions of the lungs with overfilling of the smaller bronchioles. At autopsy the pleural surface of the lungs was studded with white spots of barium and the cut surfaces demonstrated barium sulfate throughout the lungs.

Prior inhalation of methyl cellulose resulted in better filling of the lungs by sedimentation and resulted in adequate air contrast demonstration of the smaller bronchioles. The amount of barium used could be reduced to 3 to 7 grams. Roentgenographically, the barium was completely cleared from the lungs in 24 to 48 hours in contrast to the use of barium alone, where an appreciable retention was seen as long as 47 days following the examination.

At autopsy the gross appearance of the lungs was normal and only small amounts of barium sulfate were found, contained in macrophages in the peribronchial tissues. Further testing of the effect of varying the viscosity of the methyl cellulose was felt necessary by the author. The inhalation of methyl cellulose followed by barium sulfate was thought to produce a satisfactory bronchogram in dogs however.—John T. Underberg, M.D.


In this review article 9 cases of fat emboli are reported, which were observed over a 15 year period, suggesting that this condition is uncommon in children.

There is an interesting discussion as to the mechanism of fat emboli.

There was a very high correlation of fat emboli with collagen disease. Embolization may take place even with minor trauma and should be looked for in children who are suffering from collagen disease.—Victor G. Mikity, M.D.

SLOPER, LEO. Goodpasture’s syndrome and its radiological features. Australasian Radiol., May, 1969, 13, 164-172. (Address: Assistant Radiologist, Department of Diagnostic Radiology, The Royal Melbourne Hospital, Victoria, Australia.)

Goodpasture, in 1919, described a case of a young man who died with pulmonary hemorrhage and glomerulonephritis following an influenza-type ill-
ness. The term Goodpasture's syndrome has been coined to describe a disease of young adults, usually male, most commonly presenting initially with hemoptysis and subsequently anemia and glomerulonephritis. The hemoptysis may be relatively minor or frank. The anemia and pallor are sequelae to the pulmonary hemorrhage; hemolysis has not been demonstrated. Hypertension, unlike poststreptococcal glomerulonephritis, is not a prominent feature.

Pathologically, in the well-developed case, nearly all the glomeruli in the kidneys are abnormal and involved by various stages of diffuse necrotizing glomerulonephritis, in contradistinction to poststreptococcal glomerulonephritis, where all glomeruli are affected approximately to the same degree. There is no evidence of arteritis. The lungs are characterized by intra-alveolar hemorrhage with edema and deposits of fibrin and with considerable hemosiderin-laden macrophages present in both the alveoli and interstitial tissues. Either hemorrhage or pulmonary hemosiderosis may predominate depending on the course of the disease at the time the lungs are studied.

Several theories have been advanced but as yet the etiology remains uncertain; presently, periarteritis nodosa is excluded from the classification of Goodpasture's syndrome. A viral etiology, immune disease and a variant of poststreptococcal glomerulonephritis have been suggested.

The radiologic features are confined to the chest roentgenograms and are due to pulmonary hemorrhage or pulmonary hemosiderosis. Fine miliary ill-defined opacities of 1 to 2 mm. in diameter, sometimes so numerous as to give a ground glass or dense powdery appearance to the lungs, have been seen and are ascribed to hemosiderosis. In acute pulmonary hemorrhage, large ill-defined dense mottled opacities are noted throughout the lung fields, particularly in the perihilar regions or middle third of the lungs with sparing of the apices and costophrenic angles. These may become confluent and the areas of involvement may vary during the course of the disease process.

One case of pleural effusion has been described in the literature but the case was complicated by rheumatic heart disease. The roentgenographic picture may suggest the diagnosis early in the course of the disease but the final diagnosis depends upon the renal biopsy.

The differential diagnosis includes acute pulmonary edema, bronchopneumonia, polyarteritis nodosa, uremic lung, miliary tuberculosis, sarcoid, pneumococcosis and pulmonary alveolar proteinosis.

Respiratory distress, anemia and uremia sometimes lead to rapid death. In other cases, the course is marked by exacerbations. Corticosteroids and azathioprine therapy have been tried with some success.

Seven patients, three of whom survived, are reported. There are excellent roentgenographic reproductions and clinical histories.—John T. Underberg, M.D.


Multiple primaries occur in about 2 per cent of all malignancies. The authors distinguish 2 forms of double primaries in the lungs: simultaneous, when both tumors are found at the same examination; and successive, when the second tumor appears after some interval of time.

Shields reported 13 cases of double primary lesions, 39 bilateral and 14 unilateral. Auerbach found carcinoma in situ in 48 of 54 instances of double pulmonary tumors. Of the 7 patients reported by the authors, 6 had spherical lesions with or without cavitation.

The diagnosis of double primaries is made by selective bronchoscopy and cytology.

Since there may be a so-called cancer susceptibility, patients presenting with one lesion must be watched for subsequent involvement, recurrence or another primary lesion. This is apparently more important as the lifespan of individuals is on the increase. In view of the highly improved technique of thoracic surgery, the best therapeutic results are obtained by this method. In inoperable cases, the use of irradiation with high energy roentgen rays or high speed electrons offers a more hopeful outlook than in the past.—J. Zausner, M.D.


Compared to other neoplasms, the diagnosis of osteogenic sarcoma is made fairly soon, averaging 5 months between onset of symptoms and therapeutic intervention, because of the pain due to the periosteo reaction. Despite the type of treatment, the metastases occur relatively early, i.e., within 4 to 6 months.

In 150 cases, the author found 33 examples of pulmonary metastases. The early metastasizing form, occurring on the average 2.8 months after treatment, was found in one-third of the cases, while the late form, 14.5 months after treatment, was seen.
in two-thirds. In the latter form, no uniform initiation of growth could be distinguished but this can be estimated more readily in the former.

Some questions are still unanswered: Is there a potential for spontaneous metastases from osteogenic sarcoma even before the initial treatment is started? Are the metastases induced or accelerated by the type of treatment? How valuable is preoperative radiotherapy? What is the proper interval between such therapy and subsequent surgery? How accurate is the determination of the "doubling growth-rate" in the presence of atelectasis, pleural effusion or non-spherical lesions?

From his observations, the author postulates that the early metastasising form arises just before or at start of any kind of treatment. This means that treatment is instituted too late in most instances. He advocates a waiting period of 6 months between radiotherapy and surgical intervention for the primary tumor.—J. Zausner, M.D.


Spontaneous or pressure rupture of the esophagus has a high rate of mortality. Five cases are reported with 4 terminating in death and the fifth experiencing 1 year of morbidity.

Rupture can occur as often in the middle-third as the lower-third of the esophagus and can result from violent vomiting or attempted suppression of vomiting. One case reported alcohol ingestion as a possible contributing factor.

Gastrographein or dionosil swallow confirmed the diagnosis in these patients who had unilateral or bilateral pleural effusion, pain, and collapse. The swallow did not disclose the site of a second perforation in one patient and was not an accurate indicator of the length of the perforation.

Esophagoscopy is recommended prior to thoracotomy to accurately determine the length of the tear and rule out the presence of a second tear.

Primary suture of the esophagus is difficult due to necrosis of the edges in cases more than 12 hours after rupture.

Conservative therapy with simple pleural drainage and gastrostomy is more likely to produce a satisfactory result.—David Morse, M.D.

Abdomen


The author attempts, in his leading paragraph, to offer a basis for diagnosis of esophageal hiatus hernia. He then goes on to describe and illustrate a defect in the fundal aspect of the stomach, which he states is a new radiologic sign of esophageal hiatus hernia. The cases presented and illustrations are very good. Anyone who has conducted any great number of upper gastrointestinal studies has seen the defect described many times, and it has been previously described in the literature.

The mechanism of production of this moon-shaped deformity is not well understood and I doubt that the author's interpretation of the formation of the defect is valid in all cases.—Richard E. Kinzer, M.D.


Several methods have been utilized for showing the gastric wall: a combination of intragastric gas insufflation and pneumoperitoneum; tometry and histamine medication supplemented by celiac arteriography. The authors believe that tomography of the gas-distended stomach proves sufficiently adequate for optimal results.

Their method consists simply of letting the patient swallow a carbonated drink to be followed by laminographic exposures in the supine position. The central ray is aimed at a point 2 cm. below the xiphoid process and an equal distance to the left of the midline. The angle of the tube excursion amounts to 10 or 15 degrees and the travel time to 0.5 seconds. The body sections are most revealing at the levels of 14 to 17 cm. above the table top. The usual technical factors are 80 kv., and 80 ma.

The next step comprises an intramuscular injection of 1 ml. histamine followed by an intravenous dose of conray 80 per cent. Immediately prior to this, 25 mg. cortisone is injected and 5 to 10 minutes later the procedures of gas distention of the stomach and laminography are repeated. Photometric measurements disclosed that without the contrast material and histamine medication, the gastric wall density diminishes by 30 per cent.

The method was successfully used in 12 cases of gastric carcinoma and 8 cases of gastritis in which existing differential diagnostic difficulties could be clarified.—E. Kraft, M.D.

Hodgson, W. J. B. Intestinal obstruction in an adult suffering from mucoviscidosis. Brit. J.
Mucoviscidosis is a hereditary disorder involving the lungs, pancreas and sweat glands. Abdominal complications nearly always affect infants, whereas respiratory complications affect adults. An adult case of mucoviscidosis and intestinal obstruction is reported. Most of the clinical features of the disease are discussed.—Richard P. Taylor, M.D.

Han Sang Y., Collins, Lois C., and Wright, Robert M. Choledochal cyst: report of five cases. Clin. Radiol., July, 1969, 20, 332–336. (From: Department of Radiology, Baylor University College of Medicine, Houston, Texas; and Department of Surgery, Wallace Memorial Hospital, Pusan, Korea.)

Choledochal cyst is a congenital cystic dilatation of any segment of the extrahepatic biliary ducts caused primarily by a congenital weakness of the wall. It may involve the hepatic duct, the common duct, or even the cystic duct. The authors report 5 cases in Korean children, aged 6 months to 15 years.

The clinical manifestations were: (1) in early infancy—obstructive jaundice; and (2) in children—the classical triad of jaundice, abdominal pain, and a mass.

Plain abdominal roentgenograms disclosed a right upper quadrant mass. Barium studies showed anterior and inferior displacement of the gastric antrum and duodenal bulb and lateral displacement of the sweep. Inferior displacement of the 3rd portion of the duodenum was frequent. The diagnosis may be confirmed by either percutaneous or oral cholecystography or intravenous cholangiography, provided jaundice has subsided.

It was noted that Orientals are affected more frequently than any other race, and that there is no sex difference. In Caucasians the condition is 4 times more frequent in females than in males. Almost all cases are discovered in children, adolescents, and young adults. Internal drainage of the cyst through a choledochocystoduodenostomy was the treatment of choice in this series.—Arch H. Hall, M.D.


According to many authors, selective splanchic arteriography for the study of hepatic hydatid cysts is already supplanting transparietal splenopancreatography, because the information it gives is more complete.

The diagnosis of a liver hydatid cyst is difficult to establish precisely by clinical investigation, especially if the patient has not lived in an endemic country. Laboratory tests are not completely reliable. Plain film roentgenography complemented with cholecystography or cholangiography may reveal the contour of a parasitic lesion by the eventual displacement of the biliary tree or by calcifications, but their value is somewhat relative. Splenopancreatography proved more helpful for the demonstration of the tumor.

Selective arteriography, however, is now widely preferred because, when the nature of the tumor is doubtful, it makes it possible to ascertain its benignancy and its cystic nature. This diagnosis is based on well-organized surrounding vascularity and on the peritumoral effect produced by the regular, although displaced, arteries. Absence of any central anarchic vessels is also noticeable. However, a simple serous cyst may mimic a parasitic cyst; such a case is exemplified by the authors.

Five observations of true hydatid cysts are described by the authors, and 3 other cases of non-parasitic cysts. In spite of the restrictions suggested by the 3 latter cases, celiac and superior mesenteric arteriography offers primary information for the surgeon concerning the exact location of the hydatid cyst, its eventual multiplicity, its relationship with the vessels, and the condition of the uninvolved parenchyma.—H. P. Lévesque, M.D.


Operative pancreatography was performed in 26 patients. A transduodenal ampullary approach was used in 13 patients, 3 patients requiring intravenous secretin administration to aid in identification of the pancreatic ampulla. Direct transparenchymatous puncture of the pancreatic duct was performed in 7 patients. Injection from the tail of the pancreas, requiring amputation of the caudal tip, was utilized in 6 patients.

The choice of technique depended upon the area of suspected pathology. In general, the transampullary approach was selected for a patient who demonstrated the least evidence of disease and in whom the
origin of the disease was thought to be in the ampullary region. Transpancreatic puncture has been performed in those patients with severe diffuse pancreatitis, in those suspected of having a pseudocyst and in those suspected of having carcinoma of the head of the pancreas. Injection from the tail was limited to those patients in whom transparenchymatous injection failed. Although elevation of serum amylase and lipase levels occurs almost uniformly, there was no clinical evidence of acute pancreatitis or pancreatic necrosis.

The normal pancreatic ducts were found to have a diameter of 4 mm. or less. Diffuse pancreatic opacification or secondary ductule filling appeared to be related to the amount of contrast material injected. A slight stenosis of the duct at the level of the junction of the body and head of the gland was found to be normal and of no clinical significance. In the presence of chronic pancreatitis, dilatation of the duct was found; in 2 of 3 pseudocysts no communication with the pancreatic duct was found, although fluid aspirated from the cyst was enzymatically indistinguishable from normal pancreatic juice. In the third patient communication was demonstrated, and in this case the pancreatic duct was also completely obstructed. This patient was the only one in the series who had complete obstruction of the pancreatic duct due to a benign cause. Three patients had carcinoma of the common duct, head of the pancreas, and ampulla, respectively. Complete or incomplete obstruction was found in all 3 cases.

The operative use of pancreatography in select cases is a safe and informative procedure and may be of value in providing an anatomic basis for understanding several syndromes of pancreatic disease.—Mark D. Reiss, M.D.

Genitourinary System

Ritchie, G. W., and Burrage, G. A trial of Isopaque 300. J. Canad. A. Radiologists, June, 1969, 20, 86-90. (From: St. Boniface General Hospital, St. Boniface, Manitoba, Canada.)

Isopaque 300 is a balanced mixture of sodium, n-methylglucamine, calcium and magnesium salts of mepsiteic acid, containing these salts in the proportion of sodium 43 per cent, n-methylglucamine 7.86 per cent, calcium 1.5 per cent and magnesium 0.5 per cent of mepiteic acid.

The results of a study of 199 routine intravenous pyelographies in 184 unselected patients are reported employing this new contrast medium. Observations were recorded as to the quality of the pyelograms obtained and the side effects noted in these patients and in a similar group running concurrently, utilizing hypaque 50 per cent.

The data were analyzed by means of a scoring system according to age, sex, weight and pyelographic quality. Isopaque 300 produced pyelograms of similar quality to hypaque 50 per cent in the same dose. The same ratio of side effects was recorded with each contrast medium and no severe reaction was encountered. A. Franklin Turner, M.D.


Transitional anatomy bridging gross structure and microscopic sections can only be studied by special techniques. Twenty-six fresh human kidneys were injected to graphically demonstrate the intrarenal arterial and venous distribution and to visualize the tubular system via cleared specimens, corrosion preparations and roentgenograms of renal sections.

The vascular density of the cortex is many times greater than that of the renal medulla corresponding to the large cortical blood flow. The largest intrarenal vessels (interlobar arteries and veins) are concentrated about the renal columns and the corticomedullary junctional area. The glomeruli are arranged, in the cortex, into vertical columns in relation to interlobular arteries. The afferent glomerular arterioles end in a single glomerulus (82 per cent) or divide into two (14 per cent) or more (4 per cent) branches. No arteriovenous shunts, such as present in the cat, were found in the human kidney.

Approximately 80 per cent of vasa recta arterioles cascade downward, from the inner cortex, into the renal pyramids and at the corticomedullary junctional area and outer medulla are not straight vessels but are tortuous in nature. Presumably they convey the functional circulation to the renal medulla since their tortuous course allows for a larger vasomediullary tissue contact per unit area of medullary parenchyma. This relationship (straight vessels and renal tubule approximation) is considered essential for the operation of the counter-current system concept in urinary concentration and dilution (interchange of water and osmotic constituents between vasa recta and interstitial tissue). Some 20 per cent of the arterioles branched into thin capillary networks about the renal tubules (peritubular capillaries) in the outer medulla, presumably to provide the nutritional circulation to the tubule cells and interstitial tissue of the renal medulla.

The intrarenal venous distribution follows the arterial distribution quite closely. The main differences are due to existing large venous anastomoses between the arcuate veins, smaller anastomoses about the renal pelvis and calyces and the anastomoses of the small veins with the interlobar veins (interlobar-calyceal network). These anastomoses appear to account for pyelovenous backflow which
is sometimes seen during retrograde pyelography.—Richard Pfister, M.D.

Poilly, J.-N., Dickie, J. E. N., and James, W. B. Renal sinus lipomatosis; a report of twenty-six cases. Brit. J. Urol., June, 1969, 41, 257-266. (From: Southern General Hospital, Glasgow, S.W.1, Scotland.)

In an attempt to evaluate the incidence and possible etiology of renal sinus lipomatosis, a retrospective study was made of 3,500 intravenous urograms obtained at the Southern General Hospital in Glasgow. The comparative incidence of urinary stones (a common disease) and medullary sponge kidney (a rare disease) was concomitantly studied. There were 23 cases of the 3,500 which had roentgenologic diagnostic criteria positive for renal sinus lipomatosis; this indicates that 0.66 per cent of patients investigated for urinary tract disease had evidence of an increase in renal sinus fat. Comparatively, 12.3 per cent had urinary tract stones, and 0.5 per cent had changes diagnostic of medullary sponge kidney.

The diagnostic criteria, assayed on plain roentgenograms, intravenous urograms, nephrotomograms and in a renal arteriogram were:
1. increased area of translucency with indistinct margins in the anatomic location of the renal sinus;
2. elongation, narrowing and arching of the major calyces;
3. concavity of the sinus aspect of the calyceal cup;
4. diminution in the renal substance thickness; and
5. narrowing and wide-spacing of renal artery branches, with lack of normal branching in the area of replacement by lipomatosis.

With an additional 3 cases of renal sinus lipomatosis added after the study was started, the incidence of chronic pyelonephritis, hypertension, urinary tract stone and obesity in the 26 cases was examined. In only 5 of the 26 cases were none of these 4 conditions present. In many of the patients, more than one condition was present. One of these 4 conditions was found to be present in approximately 50 per cent of all the cases of renal sinus lipomatosis, which also has been reported in the literature. Therefore, the presence of chronic pyelonephritis, hypertension, urinary stones or obesity is felt to be of etiologic significance in the development of renal sinus lipomatosis.

Although the condition does not appear to produce symptoms, it is felt to be of importance in terms of differentiating lipomatosis from other space-occupying lesions seen in the kidney. Six cases have been reported where a nephrectomy was performed for this condition, and certainly this could be avoided utilizing the diagnostic criteria as given above.

A second area in which the importance of renal sinus lipomatosis is seen concerns the roentgenologic estimation of the amount of renal parenchyma. In the presence of a marked increase in the sinuses fat, measurement of the kidneys would give a false high value for the amount of renal parenchyma, and this must be taken into account.

A third reason for the importance of recognizing renal sinus lipomatosis is that this condition may mimic polycystic kidneys, a diagnosis which certainly may have a very different prognosis.—Mark E. Reiss, M.D.

Ettinger, Alice, Kahn, Paul, C., and Wise, Henry M., Jr. The importance of selective renal angiography in the diagnosis of polycystic disease. J. Urol., Aug., 1969, 102, 156-161. (From: Department of Radiology, New England Medical Center Hospitals and Tufts University School of Medicine, Boston, Mass.)

The diagnosis of polycystic disease has grave implications, with the patient usually condemned to a shortened life. In its early phase, the recognition of polycystic disease of the kidneys is far from simple and may be missed entirely or misdiagnosed as some other type of renal mass lesion.

Six cases reported were studied by selective renal angiography. Stretching of the renal arteries commensurate with the degree of involvement was noted. The most characteristic finding was round luencies varying in size from 5 cm. to barely distinguishable defects seen in the nephrographic phase. Selective renal angiography also allows an accurate assessment of the renal parenchyma.

Since the diagnosis of polycystic disease is such an important one and renal angiography a safe, simple and accurate method for establishing the diagnosis, it is suggested that the indications be broadened to include: (1) patients with intravenous pyelographic findings that suggest but do not establish the diagnosis of polycystic disease; (2) relatives of patients with polycystic disease who have normal intravenous pyelograms but wish to know whether they have polycystic kidneys; (3) patients with known early polycystic disease in whom hypertension develops and appears to be excessive for the amount of renal involvement; (4) patients with known polycystic disease in whom a question of malignancy arises; and (5) patients in whom the diagnosis of polycystic disease is suspected on the basis of atypical urographic findings and in whom an important medical decision depends on ruling out this disease.—A. Franklin Turner, M.D.

Wegner, Gene P., Crummy, Andrew B., Flaherty, Timothy T., and Hipona, Flor-encio A. Renal vein thrombosis: a roentgeno-

The etiology, morphologic staging and radiographic findings in renal vein thrombosis are presented. The occlusions are divided into acute, chronic, complete and incomplete categories. The findings of each, employing intravenous phlebography, arteriography and phlebography are given.

Renal vein thrombosis is difficult to differentiate either clinically or histologically from membranous glomerulonephritis. The angiographic features, however, will provide the differential diagnosis.

Absent or diminished opacification of the collecting system is seen in excretory urography in all but chronic occlusion with development of venous collateral circulation. The latter may be suspected by the demonstration of ureteral notching.

The arteriographic changes depend on the acuity and severity of the occlusion. The arterial changes are most dramatic in the acute complete occlusion where there is delayed flow, decreased renal artery caliber, stretching and splaying of the interlobar arteries and decrease in cortical opacification.

Phlebography may be done by venocaval washout or selective renal vein visualization.—*Saul Heiser, M.D.*


Evaluation of renal size in azotemic patient frequently provides an indirect assessment of duration of renal disease. Intravenous urography and Hg197 tagged chrormerodrin renal scans, however, appear to be unsatisfactory in these patients.

Scans made with 131I-ortho-iodohippurate successfully visualized the kidney in 18 of the 19 patients with blood urea nitrogen ranging from 62 to 146 mg. per 100 ml. and plasma creatinine of 3.5 to 17.2 mg. per 100 ml.

Regarding impairment of renal function, a prolonged transit time of the ortho-iodohippurate permits adequate time for conventional rectilinear scanning.—*Abbas M. Rejali, M.D.*


Eleven infants with ureteropelvic obstruction were compared to 9 infants with ureterovesical obstruction, presenting during the interval from 1960 to 1965. The higher ureteral abnormalities resulted, with 1 exception, in urinary tract symptoms. They were accompanied by contralateral abnormalities in 45 per cent of the cases. These cases were more amenable to treatment than were those of lower urinary tract obstruction. It was these concurrent abnormalities in the majority of cases which led to the discovery of the ureterovesical obstruction.

In the article some interesting cases are reported which are related only by an approximate position of the ureteral abnormality.

The cause of the obstruction, the presence of additional abnormalities both in and out of the urinary tract, and the means of surgical correction varied considerably.—*Victor G. Mikity, M.D.*


This study evaluated 324 children with urinary tract infection. Eighty-three of the patients (28 per cent) had vesicoureteral reflux (cystogram) with 28 (27 girls, 1 boy) of this group demonstrating roentgenographically normal kidneys (intravenous pyelogram) and a normal voiding pattern without residual urine (cinecystourethrogram).

The authors review the causes of vesicoureteral reflux: neurogenic bladder, extrophy of the bladder, iatrogenic damage, infravesical obstruction, urinary tract infection and an incompletely ureterovesical junction, presumably representing a deficiency in the trigonal muscle.

Under conservative therapy (careful antibiotic coverage for at least 6 months) 12 of their 28 cases (43 per cent) stopped refluxing. Of the 16 remaining cases with persistent reflux 7 had recurrent infection and underwent antireflux operations; 2 were operated on for other reasons without further episodes of infection; and 6 without further infection are being followed. One child was lost to follow-up.

Since approximately 25 per cent of children with an infection will reflux, a cystourethrogram of every child with even one urinary tract infection should be obtained. Eighty-two per cent of their patients with reflux and normal upper tracts had no exacerbation of infection and none experienced upper tract damage under antibacterial therapy for at least 6 months.

Because vesicoureteral reflux ceased in 43 per cent of these patients, the authors conclude that a trial of conservative treatment in patients with reflux and normal upper tracts is advisable as an initial course.—*Richard Pfister, M.D.*