Further Section

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**Summaries – Résumés**

Subacute constrictive uremic pericarditis
Constrictive pericarditis due to chronic uremia
These two reports document the occurrence of subacute constrictive pericarditis in three patients with chronic renal failure. Two of the individuals were maintained with a form of chronic dialysis; one with intermittent peritoneal and the other with weekly hemodialysis treatments. Acute pericarditis was recognized in all patients prior to the development of constriction at intervals from 2 ½ to 4 months prior to demise. All patients expired and postmortem examination revealed a thickened fibrous pericardium measuring up to 1 cm in thickness. These reports emphasize that although constrictive pericarditis secondary to chronic uremia is extremely unusual it does occur.

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An epidemic of hepatitis in a chronic hemodialysis unit: Australia antigen and Differences in host response
In a chronic hemodialysis unit all 9 patients and 6 of 15 staff members within one year had evidence of viral hepatitis. Australia antigen (Au [1]), a virus-like particle associated with acute and chronic viral hepatitis but not other liver disease was found in the blood of 8 of the 9 patients and in the two staff members with hepatitis tested. Clinical and laboratory features of hepatitis in the staff and the patients in dialysis were different. In the former an acute disease characterized by serum bili-rubin over 3 mg per 100 ml, SGPT over 1000 units and duration of SGPT elevations of less than 10 weeks developed. The patients on dialysis manifested a chronic anicteric disease, with SGPT’s under 1000 units but SGPT elevations lasting for 20 weeks or more; the cases were detected only because of frequent testing for Au (1) and SGPT. Susceptibility of patients with chronic renal disease to chronic Au (1) hepatitis is probably related to impaired immunologic responsiveness.

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Peritoneal dialysis in colistin intoxication: Report of a case
Previous reports of the ineffectiveness of peritoneal and hemodialysis in the treatment of colistin intoxication have been published. This paper describes the successful use of peritoneal dialysis in a child who had received a large overdose of this antibiotic. A 9-year-old boy was given 20 mg of colistimethate per kg daily for two days. He had become anuric after the second dose and
experienced blurred vision and ataxia after two subsequent doses. He had been anuric for 36 hours prior to transfer to the reporting hospital. Peritoneal dialysis was begun three days after admission at which time a serum colistin level was 16 µg/ml (normal therapeutic range 1-3 µg/ml). There had been no detectable diminution in serum colistin levels in the two day period prior to peritoneal dialysis. Three determinations had been performed prior to the initiation of dialysis. After 21 exchanges of 1500 ml each and a dwell time of 45 min, the serum colistin concentration had fallen to 8 µg/ml, and after 15 additional exchanges was 4 µg/ml. Urine excretion increased 11 days after colistin therapy was instituted, but since the creatinine clearance was still maximally depressed and the serum colistin concentration was still 4 µg/ml, a second dialysis was begun. At the end of 36 exchanges, the serum concentration of colistin was 2 µg/ml and the creatinine clearance began to increase. Eighty days after the colistin insult, all parameters of renal function including urinalysis, creatinine clearance and intravenous pyelography, were within normal limits. The authors attribute their successful treatment of a reportedly poorly dialyzable toxin to the greater efficiency of peritoneal dialysis in children and to the very high serum concentrations of colistin in this patient.

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Penicillin handling in normal and azotemic patients
The serum penicillin curve after bolus injection of 5 million units of penicillin G was determined in 10 normal and 10 azotemic patients. The curve in normal patients was biphasic, with rapid falloff (α phase) for 60 min and slower fall (β phase) thereafter. Half-life of the β phase in normal patients was 42 min. With azotemia penicillin half-life in serum was prolonged. A logarithmic relationship was observed between rising serum penicillin half-life and falling glomerular filtration rate (inulin clearance) and effective renal plasma flow (PAH clearance). Drip infusions of penicillin over 6 h led to marked fluctuation in serum drug level, as the volume of drug-containing infusion varied. With a constant infusion pump the serum penicillin level was steady, but only after 4 to 6 half-lives of penicillin elapsed, during which the serum level rose to the steady level. The data demonstrate that intravenous penicillin therapy given by intermittent boluses or an initial bolus followed by attended or constant infusion requires prompt determination of renal function, lest toxic levels of the drug accumulate.

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Use of tissues embedded in epoxy resin for routine histological examination of renal biopsies
The production of 0.4 µm thick, full length sections from renal tissue taken by needle biopsy, is achieved by formalin and osmic acid fixation, embedding in epoxy resin and sectioning with a glass knife as for ultramicrotomy. The main advantage of routinely preparing this type of very thin section for diagnostic purposes is that it provides much better histological detail than its thicker paraffin embedded counterpart. As a consequence of the improved overall histological clarity it is possible, on light microscopy, to assess marginal degrees of glomerular basement membrane thickening, locate any deposits which may be present, identify the mesangial areas with more certainty and also visualize fusion of foot processes on the epithelial aspect of the membrane. (These features are all illustrated in a series of 14 comparative photographs of paraffin and epoxy resin embedded material in the original article). In addition full length
sections of epoxy resin embedded tissue permit examination of the entire biopsy and also provide an opportunity to select and prepare a particular area for ultrastructural study should this be required.

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Retroperitoneal Fibrosis: A radiological and follow-up study of 14 cases

14 cases of retroperitoneal fibrosis are reported; three had received amphetamine derivatives before their condition developed, adding a further possible aetiological factor. Most autoantibody tests were negative but four cases showed a serum globulin reacting with smooth muscle fibres; this may well be non-specific and due to tissue destruction.

Radiologically the entire ureter must be visualised in suspected cases. The narrowed area varies considerably in length, position and severity and the disease frequently extends well beyond the ureteric narrowing. Medial ureteric deviation is fairly common but is not diagnostic since many normal subjects show medially placed ureters. A compressed appearance of the inferior vena cava may be characteristic.

One patient died of oesophageal varices due to extensive fibrosis. Another died of heart block from myocardial fibrosis. The disease progressed after successful operation in two cases and a continued follow-up shows that apparently unilateral disease may ultimately develop bilateral changes. The sedimentation rate returned to normal in eight cases after successful operation; the cause of its elevation in this disease is not certain.

The need for careful follow-up and the tendency to relapse are stressed.

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Ureteral strictures following therapy for carcinoma of the cervix

In this paper, ten patients with ureteral strictures resulting from therapy of invasive carcinoma of the cervix are presented. Three of these patients had been treated exclusively with radiation and seven have received both radiation and radical surgery combined. All of the strictures following radiation were recognized one year or more following therapy. All patients had symptoms related to the urinary tract, and operative intervention led to salvage of renal function in two instances. In the third, lysis of periureteral adhesions and insertion of a ureteral catheter did not preserve function. Radium therapy anteceded surgery in all cases where stricture appeared post surgically, and four of the patients had also received external therapy to the pelvis. Five strictures were unilateral and two bilateral. Patients became symptomatic and strictures were diagnosed an average of 3.4 months after treatment with a range of 2-7 months. The use of catheters to dilate the strictures failed in 6 of 8 instances and ureteral reimplantation or permanent nephrostomy was required to achieve kidney salvage. These ten patients with ureteral strictures were culled from records of 1226 women with invasive carcinoma of the cervix admitted to the authors’ service. Despite this low incidence of stricture due to irradiation alone, the authors cite reports by Altwater and Imholz (Geburtsh. Frauenheilk. 20:1214, 1960) and Kirchoff (Geburtsh. Frauenheilk. 20: 34, 1960) who found that tumor was lacking in 1/8 to 1/11 of patients dying of uremia after irradiation for cervical carcinoma; rather, ureteral obstruction was found to be
caused by irradiation fibrosis. The higher rate of stricture in the patients treated by combined irradiation and surgical therapy in this and other series is commented on by the authors, a phenomenon possibly related to denervation and devascularization of the distal ureters during surgery. The authors stress the importance of tissue diagnosis to prove or disprove the existence of tumor as the cause of ureteral obstruction in order to allow renal salvage of the patients without residual tumor. They suggest that the decreasing use of ureteral catheters during surgery has significantly decreased the incidence of strictures in their more recent experience. Nonetheless, they recommend the use of post-operative pyelograms two weeks, six weeks, three months, six months, and one year following therapy in order to permit the early detection of ureteral strictures and the reversal of hydronephrosis caused by ureteral obstruction.

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A comparison between Albustix, Hema-Combistix, Labstix, the sulphosalicylic-acid test, Heller’s nitric-acid test, and a Biuret method


A number of studies previously published have considered the Albustix method for the detection and quantitation of urinary protein to have high specificity and sensitivity. In the present study, comparison between the results obtained using Albustix, Hema-Combistix, Labstix, the sulphosalicylic-acid test and Heller’s nitric acid test showed great discrepancies. Values obtained with Hema-Combistix gave values which were higher than those obtained with Albustix in 81% of 2400 urine specimens which were tested in parallel. Agreement tended to be found only with higher protein concentrations. There was agreement in only 39% of 1211 specimens in which Albustix and Labstix were compared. The Labstix readings were higher than the Albustix readings in 52% and lower in 9% of instances. Again, best agreement was held at the highest protein concentrations, values obtained with Labstix tending to be higher than those obtained with Albustix in the lower ranges. There was, however, better correspondence between Albustix and Labstix than between Albustix and Hema-Combistix. As expected, the results obtained with the reagent strip tests proved to depend upon the pH of the urine. The author comments on the false-positive results that may be obtained with the sulphosalicylic-acid test in the presence of radio-opaque material, tolbutamide, high penicillin concentrations, pyuria, large amounts of mucoprotein, or high concentrations of uric acid in the urine. Heller’s nitric acid test may give false-positive results in the presence of mucoprotein, proteoses, high uric acid concentrations, residence bodies, radiopaque material, pigment and hemogenates. Both the Heller’s test and the sulphosalicylic-acid test, however, have the advantage of positive in the presence of paraproteinuria, while the strip method may fail to detect such proteins. In this study, one patient with a paraproteinuria of 349 mg/100 ml of urine had strip test values of l+, whereas the sulphosalicylic-acid test and Heller’s test were appropriately positive. The author concludes that none of the applied tests satisfied the demand that should be made on a screening test for proteinuria. In the absence of more reliable methods, the sulphosalicylic-acid test and Heller’s nitric acid test are considered preferable to the strip method, although their tendency to give false-positive results renders even these tests less than ideal.

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Renal papillary and cortical necrosis in a newborn infant: Report of a survivor with roentgenologic documentation
A post mature infant was limp, pale, and gasping after a difficult midforceps extraction. When seen by the author at 30 minutes of life he was cyanotic, his blood pressure was unobtainable, and he was in severe respiratory distress. Supportive measures including hydrocortisone, penicillin, kanamycin, and anti-convulsant treatment were given. The infant voided only 17 ml of urine in the first 70 hours of life, urinalysis revealing 30-40 red blood cells per high power field and 500 mg% proteinuria. The kidneys were palpable, firm and enlarged. Intravenous pyelography on the fourth day of life showed marked impairment of the concentration of contrast medium and of abnormally delayed excretion of dye. Radiologically, the kidneys were enlarged and had a smooth contour; the pelvic-calyceal systems were not visualized. A high dose of contrast medium, (5 ml per kg of Renographin® 60), was used. The BUN concentration and serum creatinine concentrations increased to 87 and 8.2 mg% respectively on the fourth and fifth day of life. By the fifth day, urine output increased to 195 ml per day and renal functional improvement was evident. On the sixth day of life, urine cultures which earlier had been negative, now grew more than 100,000 colonies of Aerobacter, which were resistant to kanamycin therapy. Urine sterility was achieved after six days of treatment with polymyxin B and nitrofurantoin. At 2 ¼ months of age, an intravenous pyelogram revealed signs consistent with papillary necrosis. On re-evaluation at age 8 months, blood pressure was normal, BUN 11 mg%, serum creatinine 0.5 mg%, and an overnight urine sample was concentrated to 610 mOs/kg O. Intravenous pyelography revealed patchy kidney growth and increased scarring bilaterally. The kidney contour had become more irregular and the changes of papillary necrosis more advanced. Urinary tract infection with Aerobacter reoccurred and required further antibiotic therapy. The authors believe this to be the first reported case of survival following renal papillary and cortical necrosis in a neonate and speculate that some infants with less severe renal damage than existed in their case may escape detection in the neonatal period and are later thought to have dysplastic kidneys.

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Effect of allopurinol on urinary ammonia excretion in patients with gout
Nine individuals with clinical gout were placed on a low purine diet of fixed electrolyte composition. After a minimum of five days on the low purine diet, two grams of ammonium chloride were given every 6 hours for 4 consecutive days. Thereafter, allopurinol was given at a dose of 300 mg/12 h for 6 or more days, at which time the ammonium chloride regimen used earlier was reintroduced for 4 days. Ammonium chloride given during the control period produced a similar degree of acidosis and caused a similar degree of rise in ammonia excretion as when given simultaneously with allopurinol. There was no difference between urinary titratable acid and reduction in urinary pH in the two time periods. No measurable effect of ammonia excretion on urinary uric acid could be detected.

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Clinical evaluation of amiloride, a potassium sparing diuretic
The new potassium sparing diuretic amiloride was evaluated in 34 edematous patients in hospital. Of these, 21 had ischemic heart disease, 4 had pulmonary heart disease, 3 had rheumatic heart disease, 2 had thyrotoxic heart disease, 1 had hypertensive heart disease, 2 had hypothyroid heart disease, and 1 had gravitational edema without evidence of cardiac disease. The natriuretic and potassium sparing effects of 40 mg of amiloride were significantly greater than that maintained with 200 mg triamterene used alternatingly in a controlled manner. The natriuretic effect of amiloride usually was complete within 24 hours. In a few patients, the potassium retention lasted longer than sodium excretory increase. Other than a symptomless rise in serum potassium, no adverse effects of the medication were detected in the patients studied. In the majority of cases, the rise in serum potassium concentration was slight, but in two patients, absolute values greater than 5.5 mEq/l were obtained. There were no associated electrocardiographic abnormalities. Two patients were diabetic but showed no deterioration in carbohydrate tolerance during the course of the diuretic assay. A dose of 10 mg amiloride potentiated the natriuresis observed with 50 mg of ethacrynic acid and significantly reduced the loss of potassium observed with ethacrynic acid alone. Spironolactone in full doses was found not to reverse the potassium retaining action of amiloride. The authors suggest that the use of an agent such as amiloride which potentiates the natriuresis of other diuretics and at the same time blocks renal potassium loss is a more logical approach to preventing diuretic-induced hypokalemia than reliance upon oral potassium supplements. Since they were able to show that the natriuretic and potassium-sparing efficacies at ceiling dosage of amiloride are greater than those of triamterene, amiloride might also prove superior at therapeutic dose levels. They caution, however, that careful evaluation of the effects of long-term administration of this agent in therapeutic dosage is still necessary.

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Novel proteins and peptides in the urine of patients with advanced neoplastic disease


Proteinuria of significant degree has been reported to occur in patients with carcinoma of non-renal origin. Typically, these proteins are derived from normal serum proteins. In the present report, the authors present their finding of novel proteins and peptides of low molecular weight isolated on Sephadex G-75 columns from the urine of 56 patients with 19 different types of disseminated neoplastic disease. While normal subjects excrete between 30 and 120 mg per day of a group of four or more peptides with a molecular weight between 5000-8000, 27 of 56 patients with 19 different types of disseminated neoplasia were found to excrete 2-8 times more than the amount seen in normals. A total of 25 proteins of varying molecular weight and mobility was visualized. Increased secretion of the proteins was found only in the last six months of life with the exception of two cases of multiple myeloma. Eighty-seven percent of the patients without increased excretion of these moieties were alive six months after study. The authors conclude that a mild degree of proteinuria in patients with disseminated neoplastic disease commonly denotes excretion of proteins which are smaller than plasma proteins and are perhaps derived from tumor tissue. Such proteinuria may well represent normal excretion of low molecular weight proteins rather than indicating increased excretion of plasma protein across disease glomeruli.
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