

Gynaecomastia in Chronic Renal Failure

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Gynaecomastia is associated with several clinical conditions, but so far as we can ascertain the only report of it occurring in chronic renal failure is that of Shaldon (1966). He mentions gynaecomastia in patients undergoing regular dialysis treatment, and attributes this to the refeeding of malnourished uraemic patients at the start of dialysis. It does not seem to have been observed in uncomplicated chronic renal failure without regular dialysis treatment.

The presence of gynaecomastia has been observed in all four of the male patients at present undergoing regular dialysis treatment in the renal unit of the Glasgow Royal Infirmary and in two other patients with chronic renal failure.

Case Reports

The clinical and biochemical data of the six patients are summarized in Tables I and II. The patients receiving regular dialysis treatment each had two 10-hour haemodialyses a week by means of a Kolff twin coil dialyser incorporating a 0.9-sq. m. cellophane coil (Chron-a-Coil, Baxter).

The existence of gynaecomastia was determined, and agreed on by two observers, by the presence of readily palpable concentric increase in the subareolar tissues. The features of the gynaecomastia in each patient are summarized in Table III.

No patient had any clinical evidence of hepatic or of other systemic disease unrelated to the renal failure. Standard liver-function tests, serum transaminases, and a B.S.P. (bromsulphalein) excretion test were carried out on each patient. These estimations were performed by routine methods in the biochemistry department of this hospital. In no patient was any abnormality of these tests detected.

Case 1.—A bachelor aged 21 had noticed better general health, a great increase in libido, and improvement in secondary sexual characteristics since he started regular dialysis treatment. One month after beginning regular dialysis treatment he complained of considerable tenderness in the areolar region. Examination

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revealed bilateral tender gynaecomastia. This had diminished considerably but was still present.

Case 2.—A man married for 13 years, with no family, had from 1962 onwards experienced a decline in his general health and also in libido but without impotence. Since starting regular dialysis treatment there has been marked improvement in health but not in libido. At the time of writing he was impotent. Two months after his first dialysis he complained of tenderness in the nipple area, and examination revealed slight bilateral tender gynaecomastia. This had now almost disappeared.

TABLE III.—Characteristics and Duration of Gynaecomastia

Case No.	Features of Gynaecomastia
1	Bilateral and tender—appeared after 1 month of R.D.T.—lasted 9 months—now virtually absent
2	Bilateral and tender—appeared after 2 months of R.D.T.—lasted 9 months
3	Bilateral and tender—appeared after 1 month of R.D.T.—diminished but still present after 8 months
4	Unilateral and tender (left side)—appeared after 1 month of R.D.T.—lasted 3 months
5	Bilateral and tender—lasted 3 weeks—not on R.D.T.
6	Bilateral and non-tender—duration unknown—not on R.D.T.

Case 3.—A married man with two children, aged 5 and 7, had experienced a progressive decline in health from January 1966 in association with loss of libido and impotence. After one month of regular dialysis treatment libido and potency returned. At this time he also noticed tenderness in the nipple region. Examination revealed gynaecomastia, which, though considerably reduced, was still present after eight months (Figs. 1 and 2).

Case 4.—A married man with a child aged 6 experienced a decline in health plus loss of libido from July 1966. There was no impotence. He started regular dialysis treatment in January 1967, and thereafter he had a rapid increase in libido. One month after starting regular dialysis treatment unilateral slightly tender gynaecomastia was observed. This completely regressed after three months.

Case 5.—This patient was a bachelor aged 24. In July 1966, after a six months' decline in health, he was diagnosed as suffering from chronic renal failure. He improved with a 20-g. protein diet, but in December 1966, because of considerable proteinuria (11.8 g./24 hours), the dietary protein was increased to 30 g. a day.

TABLE I.—Clinical and Biochemical Data of Patients Receiving Regular Dialysis Treatment (R.D.T.)

Case No.	Age	Diagnosis	Duration of R.D.T. (months)	Average Pre- and Post-dialysis		Other Management	Comment
				Blood Urea (mg./100 ml.)	Serum Creatinine (ml.)		
1	21	Renal hypoplasia	10	140→46	12.0→5.7	40-g. protein diet	Rehabilitated
2	38	Chronic G.N.	12	182→66	11.4→5.4	40-g. protein diet. Methyldopa	Partially rehabilitated
3	36	Chronic G.N.	9	147→42	11.5→6.0	40-g. protein diet	Rehabilitated
4	28	Chronic G.N.	6	118→45	7.5→4.2	40-g. protein diet. Methyldopa	Partially rehabilitated

G.N. = Glomerulonephritis.

TABLE II.—Clinical Data of Patients not Receiving Regular Dialysis Treatment

Case No.	Age	Diagnosis	Creatinine Clearance (ml./min.)	Blood Urea (mg./100 ml.)	Comment
5	24	Chronic G.N.	6.4	170	Hypertensive. Being prepared for R.D.T. On Giovanetti diet + methyldopa
6	59	Pyelonephritis. Hydronephrosis. Urethral stricture	4.7	180	Hypertensive. Has perineal urethrostomy. On 40-g. protein diet + methyldopa

Creatinine clearance at that time was 9.2 ml./min. In April 1967 he was feeling well but complained of nipple tenderness, and slight bilateral gynaecomastia was evident on examination. This disappeared after three weeks. By May he became unwell again with nausea and vomiting. His creatinine clearance had fallen to 6.4 ml./min. and his haemoglobin was 7.1 g./100 ml. He was transfused, and was started on a Giovanetti-type diet plus methionine supplements. This led to considerable improvement in his symptoms plus a recurrence of the nipple tenderness, which lasted for about 10 days and was uncomfortable, but there was no convincing gynaecomastia.

Case 6.—This patient, a married man with five children, had long-standing chronic pyelonephritis with hydronephrosis secondary

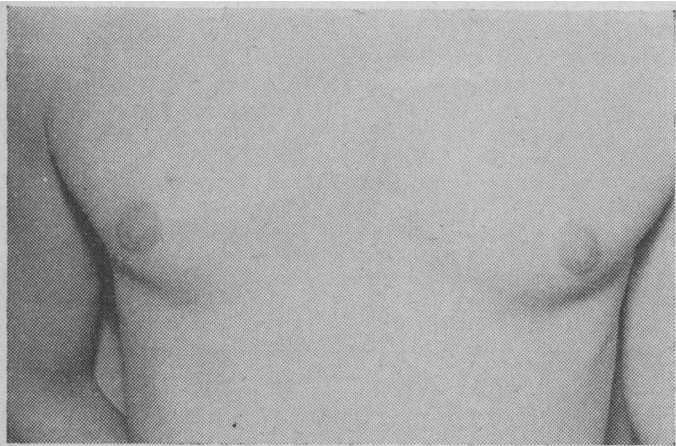


FIG. 1.—Anteroposterior view of gynaecomastia in Case 3 after eight months' regular dialysis treatment.

to a urethral stricture. The latter was of such a degree that six years ago a perineal urethra was fashioned for him. His renal disease was complicated by calculus formation. His general health was poor. His creatinine clearance was 4.7 ml./min. Therapy consisted of a 40-g. protein diet plus methyl dopa 250 mg. t.i.d. to control his hypertension. In April 1967 he was admitted for blood transfusion. During this admission gynaecomastia was noted to be present, but as the patient had not noticed this we are unaware of its duration.

Discussion

According to Paulsen (1962) the clinical conditions most commonly associated with gynaecomastia are: normal puberty, hypergonadotrophic hypogonadism (for example, Klinefelter's syndrome, functional prepubertal castrate); male pseudohermaphroditism, "refeeding gynaecomastia" (for example, recovery from generalized malnutrition, liver cirrhosis, digitalis therapy, pulmonary tuberculosis); testicular tumours (for example, choriocarcinoma, interstitial cell adenomas); spinal cord lesions; hyperthyroidism, hypothyroidism; Hodgkin's disease; and bronchogenic carcinoma.

Four of the six patients were on methyl dopa at the time the gynaecomastia was observed. We can find no reference that gynaecomastia may be caused by this drug, though breast enlargement and lactation has been reported as a rare side-effect in *females* (Pettinger *et al.*, 1963). No other drugs were being given to the patients during this time. We think it unlikely, therefore, that drugs could be implicated in the production of the gynaecomastia in these patients.

The gynaecomastia observed in Cases 1 to 4—that is, those receiving regular dialysis treatment—can probably most readily be explained on the basis of "refeeding" after the start of treatment. This is further suggested by the rapid increase in libido and potency. Presumably, as a consequence of chronic renal insufficiency plus a low protein intake, which are both likely to cause depression of pituitary gonadotrophins (Paulsen, 1962), testicular function is quiescent. With the beneficial



FIG. 2.—Lateral view of gynaecomastia in Case 3 after eight months' regular dialysis treatment.

effects of regular dialysis treatment, plus the increase in daily protein intake allowed by this regimen, a "second puberty" ensues, and this may often lead to a transient gynaecomastia.

The gynaecomastia in Cases 5 and 6, however, is without obvious explanation.

Conclusion

It would appear that transient gynaecomastia may occur not uncommonly in male patients with chronic renal failure during the early stages of regular dialysis treatment. It is also apparent that it may occur in similar patients not receiving this treatment. Further investigation into the incidence of its occurrence in chronic renal failure, and into its precise pathogenesis, is indicated.

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