

might easily be all that Nature required for this function, so little was the force called for.

Fig. 1 shows a dog's stomach prepared as described above, filled with water, and inverted. No water is escaping from the cardia. Fig. 2 shows the same preparation a few moments later. The stump of the œsophagus is now being pulled on, and water is escaping. The amount of longitudinal tension required was found to be a shade over 1 g. weight.

It was suggested in the monograph that elevation of the cardia, which always accompanies opening, is an essential element of opening, and explanations of why this should be so and how it might be effected were offered.

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GONADOTROPHINS AND TESTOSTERONE IN THE XYY SYNDROME

SIR,—Reports on the testicular status of males with an XYY chromosomal pattern have presented conflicting data. For example, Papanicolaou et al.,¹ using a bioassay, found raised urinary luteinising hormone (L.H.) excretion titres in the three men they studied. Parker² also reported uniformly increased L.H. levels in seven XYY males. He measured L.H. titres by radioimmunoassay. Further examination of pituitary/Leydig-cell function was done by Hudson,³ who found that plasma testosterone and L.H. levels were uniformly normal in five XYY males. Price⁴ detected normal testosterone titres in an additional seventeen XYY males. Evaluation of follicle-stimulating hormone (F.S.H.) has received little attention. Papanicolaou¹ found normal urinary F.S.H. values in two men and intermittently raised levels in a third with the XYY pattern. Since much of the work discussed above was done on prison inmates, Shapiro⁵ has stressed the necessity of using control subjects from a similar population.

Six patients with the XYY syndrome were detected by screening prison inmates and patients attending a dermatology clinic with severe pustular acne. An additional patient was studied after being diagnosed during a routine infertility evaluation in a metropolitan hospital. Serum L.H. and F.S.H. levels were determined by radioimmunoassay^{6,7} and plasma-testosterone by a modification of the competitive protein-binding method described by Mayes and Nugent.⁸ Serum-gonadotrophin levels were determined in normal men to serve as control values. The mean serum-L.H. level in 42 male prison inmates between 19 and 45 years of age was 10.5 mI.U. per ml. (range 4.4–23). These values, whether for institutionalised or non-institutionalised men, did not differ significantly from the mean L.H. level (10.7) in our total control group of 112 normal men. The mean serum-F.S.H. titre in 62 men with normal sperm-counts was 365 ng. per ml. LER-907 (range 150–610) and the mean testosterone in 60 normal males aged 20–45 years was 0.67 µg. per 100 ml. (range 0.28–1.44). The results in patients with the XYY syndrome were as follows:

Case	L.H. (mI.U./ml.)	F.S.H. (ng./ml. LER-907)	Testosterone (µg./100 ml.)
1	52.0	700	0.48
2	10.5	420	0.54
3	11.2	580	0.34
4	17.5	260	0.35
5	12.5	250	0.42
6	15.2	300	0.48
7	10.0	520	0.42

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All men with the XYY syndrome had normal plasma-testosterone levels. Six of seven had normal serum F.S.H. and L.H. levels. One male (case 1) with clinical evidence of androgen deficiency and a normal plasma-testosterone of 0.48 µg. per 100 ml. had raised F.S.H. (700 ng. per ml.) and L.H. (52 mI.U. per ml.) levels. Similar findings have been reported from this laboratory in patients with Klinefelter's (XXY) syndrome.⁷ While 50% of our Klinefelter's syndrome patients with clinical evidence of androgen deficiency had normal plasma-testosterone levels, all but one had raised L.H. levels. This combination of findings suggests an alteration of the pituitary/Leydig-cell axis in response to gonadal disease, and may suggest that higher-than-normal levels of L.H. are necessary to promote testicular steroidogenesis.

The man who presented at an infertility clinic (case 7) had azoospermia. A testicular-biopsy specimen revealed the following: (1) absence of germ-cells; (2) no tubular-membrane hyalinisation; and (3) normal-appearing Sertoli and Leydig cells. The "Sertoli-cell only" syndrome has not been previously reported in association with the XYY chromosomal configuration. Most patients studied in our laboratory with the Sertoli-cell-only syndrome have had raised F.S.H. levels. The normal F.S.H. values encountered in this patient emphasise the lack of basic information about F.S.H. feedback mechanisms. F.S.H. levels, similarly, are normal in many oligospermic patients with adult seminiferous-tubule failure.⁹

Apparently most patients with the XYY syndrome have normal levels of serum L.H., F.S.H., and testosterone when measured by specific methods and compared with suitable controls. This implies normal gonadal status, including spermatogenesis, although in this study germ-cell maturation was not studied directly. On the other hand, a small percentage of patients with this syndrome have testicular disease¹⁰ and raised gonadotrophins.

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SEVERE CHILDHOOD HYPERTENSION FOLLOWING CENTRAL-NERVOUS-SYSTEM INFECTION

SIR,—Sustained arterial hypertension following poliomyelitis has been reported by several workers,^{11,12} and other viral infections of the nervous system may have a similar effect.¹³ The following case-report describes malignant hypertension in a child who had had a non-paralytic infection of the central nervous system at the age of 2.

Case-report

A 12-year-old schoolgirl was referred for further management of her hypertension, having become too old for the Children's Hospital. There was no family history of hypertension or renal disease. At the age of 2 she had been admitted to a hospital with a febrile illness causing convulsions, coma, and head retraction. She had recovered and had been discharged after 10 days; no paralysis had been detected. No clinical details of this illness are available, but there is an index card showing a diagnosis of

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