

been steady and is still continuing. Both women were originally unable to carry out their duties as housewives and were even unable to look after themselves fully. They have now for some time been able to run their own houses again.

These cases are described in the hope that others will try this method, which, it seems, may arrest the progress of the disease and enable the patient to lead an active life.

Winchester.

C. B. S. FULLER.

### PROGRESSIVE EXOPHTHALMOS TREATED BY ORBITAL DECOMPRESSION

SIR,—Effective as the approach described last week by Mr. Rowbotham and Mr. Clarke would appear, a simpler and satisfactory approach in my experience is through the ethmoids and the roof of the antrum by a short incision medial to the inner canthus.

Market Rasen,  
Lincs.

M. SPENCER HARRISON.

### ELECTROPHORESIS OF PLASMA-PROTEINS

SIR,—Dr. Gerö and his colleagues (Dec. 31) mention that their electrophoretic findings support the hypothesis that splitting of the  $\beta$  band may be caused by some change in the lipoprotein pattern of the serum.

I was able to illustrate by paper electrophoresis the effect of heparin injection on lipoproteins. After 24 hours' refrigeration at 0°C, fasting serum and serum taken 30 minutes after injection of 25 mg. of heparin are added to one-third part of homogenised and sterilised, undiluted milk. The milky sera are then incubated at 37°C for 2½ hours. Next, 0.08 ml. of each serum sample is brought upon a strip of filter-paper with a median split and electrophoretically run for 16 hours using a barbitone buffer pH 8.6. After staining with sudan-black, three features can be seen: (a) In almost all paper-strips the right side (post-heparin milky serum) is less

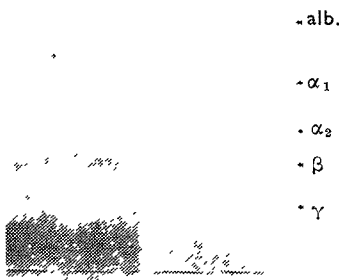


Fig. 1—Example of 4-hour run.

stained than the left side (fasting milky serum), indicating a disappearance of lipids. This corresponds with the clearing effect. (b) Nearly all strips show a shift of the  $\beta$ -globulin lipoprotein band towards the space between  $\beta$  and  $\alpha_2$  bands, sometimes even towards the  $\alpha_1$  and  $\alpha_2$  bands. This occurs only on the right side of the strip. (c) Sometimes a more or less clear band appears between the  $\beta$  and  $\gamma$  globulins, which suggests a splitting of the  $\beta$ -globulin band into two components—namely a more rapid (see [b]) and a slower one. This too is only seen on the right side of the strip.

We are trying to ascertain whether this third feature appears only when the patient has symptoms of duodenal ulcer. I could not demonstrate that athero-

sclerotic patients form an exceptional group in showing features (a) and (b). It is noteworthy that features (a) and (b) are also seen in a four-hour-run electrophoresis with smaller strips and 0.02 ml. of serum. The features described here are shown in figs. 1 and 2.

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J. VISSER.

### HYDROCORTISONE IN SEVERE TETANUS

SIR,—Despite the introduction of potent antitoxin, penicillin, various relaxants, general anaesthesia, tracheotomy, and intermittent positive-pressure respiration in the management of tetanus, the problem of preventing death in severe cases is still unsolved. We have shown by controlled studies<sup>1-3</sup> that corticotrophin, oral cortisone, and oral hydrocortisone can effectively suppress the manifestations of severe tetanus in man, modifying the course and reducing the mortality. Corticotrophin takes about 48 hours before exerting its full effect. Injected cortisone suppresses pyrexia quite well but aggravates spasms and has an adverse effect on the whole. We report here the results in five cases of severe tetanus treated with parenteral hydrocortisone.

All five cases (see accompanying table) were "severe" according to the criteria previously laid down by us. The patients were given hydrocortisone in addition to the basic therapy, which included antitoxin, penicillin, paraldehyde, supportive measures, and wound hygiene. Each of them received on admission an infusion of 50 mg. hydrocortisone over about 4 hours (case 3 received two such infusions). Intramuscular injections of hydrocortisone suspension were started at the same time, 25–50 mg. being administered every 6 hours at first. If hormone was still required after 10 days the patient was switched to oral cortisone to conserve the supply of hydrocortisone. The basic therapy, apart from hormones, was essentially the same as we applied in previous trials.

DATA ON 5 CASES OF SEVERE TETANUS

Case no.	Age (yr.)	Sex	Mode of infection	Incubation period (days)	Period of onset (hr.)
1	35	F	Dog-bite of rt leg	6	48
2	12	M	Puncture by rusted nail of rt foot	5	36
3	10	M	Otorrhœa lt ear	6	24
4	40	F	Furuncle of lt ear	5	30
5	60	M	Puncture by thorn of lt foot	6	24

Case 2 died of circulatory failure 64 hours, and cases 3 and 5 died of respiratory failure 38 and 60 hours respectively, after admission.

Cases 1 and 4 survived.

CASE 1 needed hormones for 20 days; the dose was tapered off after 12 days. Lockjaw was complete from the 2nd to the 4th day, improved gradually thereafter, and disappeared on the 25th day. Spasms were frequent up to the 7th day and occasional up to the 13th day. Paraldehyde requirements were only moderate. The temperature, which fluctuated around 100°F, went above 101°F on four occasions in the first week and was normal on the 16th day. Her stay was prolonged because in the 4th week, during convalescence, she developed pneumonia requiring additional streptomycin, and in the 5th week an abscess in her left thigh at the site of previous paraldehyde injections, requiring drainage. We have occasionally seen such abscesses even in cases not treated by hormones, especially where some paraldehyde has got into the subcutaneous tissue. In this case we do not think that the abscess was related to previous hormone therapy, because it developed long after the withdrawal of hormones.

CASE 4 received hormones for 14 days, the dose being tapered off from the 6th day. Trismus, which was never

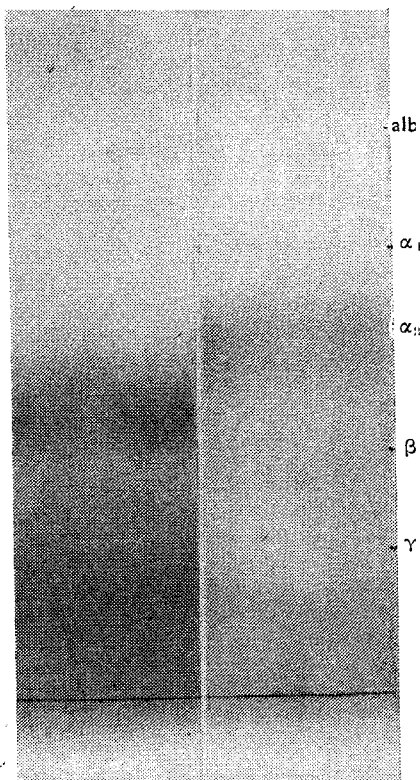


Fig. 2—Example of 16-hour run.

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- Lewis, R. A., Satoskar, R. S., Joag, G. G., Dave, B. T., Patel, J. C. *J. Amer. med. Ass.* 1954, 156, 479.
- Dave, B. T., Satoskar, R. S., Joag, G. G., Patel, J. C., Lewis, R. A. *J. postgrad. Med., Bombay*, 1955, 1, 4.