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Immediate and Delayed Disposal of Acacia Injected Intravenously in the Dog.

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The intravenous injection of acacia is followed by a decrease in the concentration of the serum proteins including fibrinogen, a diminution in the total circulating protein,¹⁻⁵ and alterations in the colloidal osmotic pressure.⁷ The acacia is stored largely in the liver.^{2, 6} These results have been attributed to an interference with the proteogenic function of the liver.²

Our experience has shown that diets containing 50 cc of codliver oil, 150 cc tomato juice, 200 g of meat, and 200 g of prepared dog food are adequate⁸ and maintain blood proteins at a high level over a period of a year's time.

When acacia solutions (12% acacia in 0.85% sodium chloride) approximating the plasma volume are injected, there is an immediate increase in blood volume (22 to 30%), a decrease in serum proteins (both albumin and globulin) and an increase in the acacia. The values for serum acacia plus protein equal the original value for serum protein. One and one-half hours after the injection the blood vessels of the viscera are engorged, ascitic fluid has accumulated and there is free bleeding from the incision. Of the injected acacia (125 g) the major part is in the muscles (54 g) and serum (48 g); lesser amounts in urine (9.0 g), ascitic fluid (7.18 g), liver (4.46 g) and kidneys (1.9 g). The large amount in the muscles is due to vascular dilatation, and the ascites to an "emergency weeping" into the peritoneal cavity.

When an animal is repeatedly injected (Table I) with allowance for recovery, there is a repetition of the phenomena occurring after

¹ Dick, M. W., Warweg, E., and Andersch, M., *J. A. M. A.*, 1935, **105**, 655.

² Heckel, G. P., Erickson, C. C., Yuile, C. L., and Knutti, R. E., *J. Exp. Med.*, 1938, **67**, 345.

³ Hall, W. Knowlton, *Proc. Soc. Exp. Biol. and Med.*, 1938, **38**, 46; *Am. J. Physiol.*, 1938, **123**, 88.

⁴ Erickson, C. C., Heckel, G. P., and Knutti, R. E., *Am. J. Path.*, 1938, **14**, 537.

⁵ Lepore, M. J., *Ann. Int. Med.*, 1937, **11**, 285.

⁶ Andersch, M., and Gibson, R. B., *J. Pharm. and Exp. Therap.*, 1934, **52**, 390.

⁷ Onozaki, Nobuske, and Sanada, Yukikazu Tohoku, *J. Exp. Med.*, 1935, **25**, 120.

⁸ Halman, Russell L., Mahoney, Earle B., and Whipple, George H., *J. Exp. Med.*, 1934, **59**, 269.

TABLE I.
Repeated Intravenous Injections of Acacia.

| Date | Acacia | | Interval since last injection | Amount given previously g | Amt | Serum proteins, g% | | | Serum acacia g | Serum acacia plus protein | Osmotic pressure mm of water |
|------|-------------------------------|---------------------------|-------------------------------|---------------------------|-----|--------------------|-------|-------|----------------|---------------------------|------------------------------|
| | Interval since last injection | Amount given previously g | | | | Alb. | Glob. | Total | | | |
| 4/21 | | 232 | 2 mos. | | | 4.30 | 2.05 | 6.35 | 0.63 | 6.98 | 306.8 |
| 4/22 | | 288 | 30 min. | 56 | | | | 3.61 | 4.17 | 7.78 | 453.8 |
| 4/26 | | 288 | 4 days | | | | | 4.45 | 2.73 | 7.18 | 391.1 |
| 4/28 | | 288 | 30 min. | 58 | | | | 2.48 | 4.81 | 7.29 | 423.4 |
| 5/4 | | 346 | 6 days | | | | | 4.00 | 2.50 | 6.50 | 390.4 |
| 5/11 | | 404 | 30 min. | 58 | | | | 2.13 | 4.69 | 6.82 | 422.3 |
| 5/17 | | 404 | 6 days | | | 2.25 | 1.35 | 3.60 | 2.59 | 6.19 | 399.0 |
| 5/18 | | 462 | 30 min. | 58 | | | | 2.07 | 4.78 | 6.85 | 421.4 |
| 5/24 | | 462 | 6 days | | | 2.25 | 1.16 | 3.41 | 3.26 | 6.67 | 323.0 |
| 5/25 | | 520 | 30 min. | 58 | | | | 2.03 | 5.77 | 7.80 | 431.5 |
| 5/31 | | 520 | 6 days | | | | | 3.21 | 2.82 | 6.03 | 357.8 |
| 6/16 | | 520 | 16 days | | | | | 3.57 | 1.92 | 5.49 | 258.5 |

a single injection. Immediately after an injection there is also an increase in colloidal osmotic pressure with a return of it to normal later. The fall in pressure is paralleled by an increase in serum proteins and a decrease in serum acacia.

The acacia is progressively deposited in the liver as shown by periodic biopsies, gradual increase in liver size and tissue analyses. In one animal the liver was 5 times normal size. Of the 756 g injected, 444.9 g (58.8%) were recovered from the liver, 105.4 g (13.9%) from the muscle, 41.1 g (5.4%) from the serum, and 11.4 g from other sources. This left a balance of 153.2 g for excretion in the urine.

The blood is cleared fairly rapidly of acacia, largely through storage. The mobilization from storage is small but definite, as shown by its presence (1%) in the serum one year after last injection. The recession of serum proteins with the addition of acacia to the blood and their return with the storage of acacia indicate a reciprocal functional relationship between the two. The rise of the colloidal osmotic pressure with the injection of acacia and its fall with storage of acacia may now receive a valid explanation. Obviously the adjustments are directed towards the maintenance of a constant osmotic pressure.

Hence, under the experimental conditions cited, the diminution of the serum proteins is not to be regarded as an index of failure of the proteogenic function of the liver, but as due to a displacement of the proteins by the acacia.

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Effect of Testosterone Propionate on Glycogen Content of Human Vaginal Smears.

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As part of an investigation into the subject of the hormonal control of the glycogen present in the vaginal mucosa, it was felt desirable to determine whether glycogen could be demonstrated in human vaginal smears. This has been accomplished by the following method:

Technic of Glycogen Stain. Patients are instructed to take a plain water douche the evening before the smears are taken. A

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