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Heterophile Antibodies in Infectious Mononucleosis.

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It was previously noted[1] that emulsions of guinea pig kidney removed sheep cell agglutinins from the sera of infectious mononucleosis patients slowly and in some cases incompletely even after 3 successive adsorptions with relatively large amounts of tissue. Since ordinarily guinea pig kidney containing heterophile antigen possesses marked affinity for heterophile antibodies it was decided to reinvestigate the antigenic relationship of guinea pig kidney to the sheep cell antibodies occurring in the blood of individuals with infectious mononucleosis.

In the previous work, to conserve material, finely ground emulsions of tissue prepared for immunization purposes were used for adsorption and as the number of successive adsorptions increased with any one serum the turbidity of the supernatant fluid increased considerably. Under these conditions it is possible that the physical properties of the serum, viscosity, surface tension, etc., were so altered that the sheep cells used in the test after adsorption were unable to fix the homologous agglutinins or having fixed the agglutinins were unable to agglutinate in the characteristic manner.

Throughout the work herein reported guinea pig kidney tissue was lightly ground in a mortar, the macerate strained through a coarse fabric and the material passing the cloth washed by centrifugation until the supernatant fluid showed only a slight opalescence. Five infectious mononucleosis sera have been absorbed with such tissue emulsions in the following way: To 2 cc. of a 1:2.5 dilution of the serum were added 0.5 cc. of the tissue emulsion. The tubes were shaken and placed at 37.5°C. for 30 minutes. The tubes were then centrifuged, a portion of the supernatant fluid tested with sheep cells for both agglutinins and lysins (lowest dilution 1:10). Fresh tissue was added to the remainder and the procedure repeated until 3 adsorptions were completed. The sera were adsorbed in the same manner with boiled sheep cells. As a control on the efficiency of the tissue emulsion similar adsorptions and tests were made on the sera of rabbits immunized to guinea pig kidney. The average titer of the different sera before adsorption and after the first, second and third adsorptions will be found in Table I.

[1] Stuart, Burgess, Lawson and Wellman, *Arch. Int. Med.*, 1935, **54**, 199.

TABLE I.

Adsorption of Infectious Mononucleosis Sera and Rabbit Anti-Guinea Pig Kidney Sera with Emulsions of Guinea Pig Kidney.

Infectious Mononucleosis Serum	Before Ads.	After 1st Ads.	After 2nd Ads.	After 3rd Ads.	Rabbit Anti-Guinea Pig Kidney Serum	Before Ads.	After 1st Ads.	After 2nd Ads.	After 3rd Ads.
					Titers for Sheep Cell Agglutinins				
1	1280	1280	640	640	1	160	0	0	0
2	2560	2560	2560	1280	2	160	0	0	0
3	1280	1280	1280	640	3	80	0	0	0
4	5120	2560	2560	2560	4	80	0	0	0
5	640	640	320	320	5	20	0	0	0
Average	2176	1664	1472	1088	Average	100	0	0	0
					Titers for Sheep Cell Lysins				
1	1280	640	640	640	1	40960	0	0	0
2	5120	2560	2560	1280	2	40960	0	0	0
3	2560	2560	1280	1280	3	20480	40	0	0
4	5120	5120	5120	2560	4	20480	40	0	0
5	1280	1280	640	640	5	20480	160	10	0
Average	3072	2432	2048	1280	Average	28672	48	2	0

It is evident from Table I that tissue emulsions prepared in the specified manner while depleting rabbit anti-guinea pig kidney serum of its sheep cell antibodies, frequently in a single adsorption, fails to remove any significant part of these antibodies from infectious mononucleosis sera. Boiled sheep cells, as might be anticipated, adsorb sheep cell antibodies from both the pathological sera and the immune sera.

It is interesting to note that the injection of guinea pig kidney into rabbits produces a high lytic titer for sheep cells but a very low agglutinating titer for the same cells. Prolonged immunization does not alter this condition. On the other hand in infectious mononucleosis sera, the increase in sheep cell agglutinins and lysins are often identical until the maximum point is reached. In several cases, however, we have noted that the lytic titer decreases sooner and more rapidly than the agglutinating titer.

The increased sheep cell antibodies which appear in the blood of infectious mononucleosis patients while heterophile in nature are not of the guinea pig heterophile type.

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Action of Apomorphine Hydrochloride upon the Small Intestine in Non-anesthetized Dogs.*

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Morphine when subjected to a strong acid undergoes a chemical rearrangement becoming apomorphine, an isoquinoline derivative possessing very little narcotic action but a strong emetic action. Cannon[1] investigated the action of apomorphine upon the cat's stomach by the X-ray method. He observed that there was total inhibition of the cardial portion of the organ while there was contraction of the extreme end of the pyloric portion.

As no study of the action of apomorphine upon the intact intestine of the unanesthetized dog seems to have been done this series of experiments was undertaken.

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[1] Cannon, *Am. J. Physiol.*, 1898, **1**, 373.