

to determine whether the experimental uræmia of double nephrectomy is comparable with human uræmia of the convulsive type as regards the toxicity of the blood. There can be little doubt that this is a most important question in the pathology of uræmia, and I regret that it is not possible for me to make an unqualified statement in regard to it. Owing to the crudeness of our methods of studying the toxic properties of the blood, it is not possible to detect moderate deviations from the normal toxicity. It can, therefore, only be said that there does not seem to be a marked difference in the toxic properties of the blood within 48 hours after nephrectomy as compared with the blood of the same animal previous to nephrectomy, but that the toxicity of the blood seems to be increased in dogs that live a longer period.

As regards the changes in the chemical composition of the blood, our information is much more positive. We know, for example, that the urea of the blood is remarkably increased after double nephrectomy—often reaching ten times the normal percentage at the end of three days. The extractives are also distinctly increased. A moderate increase in the total salts of the blood is probably a regular feature of the blood of nephrectomized animals. The potassium salts may be somewhat increased, but on the other hand may not be appreciably changed. The total proteids undergo no alteration in amount. A very interesting feature of the blood has been the marked increase in fibrin which was noted in a number of the nephrectomized dogs. This observation, though one of much interest if confirmed, has not yet been subjected to the controls which are necessary to establish it as a fact, for a very definite source of error remains to be eliminated. This consists in the fact that a part of the increase in fibrin noted after nephrectomy may be due to the bleeding which was practised several days before nephrectomy for the purpose of establishing a basis of comparison before and after operation, for it is known that the fibrin of the blood is increased by bleeding.¹

In order to be able to compare the symptoms of double nephrectomy with the obstructive type of human uræmia, the cases of

¹ Since this paper was read I have succeeded in several instances in performing double nephrectomies and ureter ligations without losing more than a few c.c. of blood, through hemorrhage. All these animals have shown a doubling of the normal fibrin content of the blood after a few days. A dog subjected to laparotomy without nephrectomy, but with a moderate loss of blood, showed no increase in the fibrin content of the blood.

These observations seem of especial interest in connection with the altered toxicity of the blood after nephrectomy, but other sources of error remain to be eliminated before the increase in fibrin can be positively attributed solely to the suppression of renal functions.