Brief Ischaemia Attending Kidney Homotransplantation by New Surgical Techniques

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We have developed three surgical methods tested on 80 dogs, with a view to curtailing the duration of ischaemia attending autologous and homologous kidney homotransplantation by using novel types of surgical instruments and techniques.

Figure 1 shows the different instruments. They consist of two halves which are constructed as a clamp. On the ends of the jaws are half ring systems which can be opened and closed. In these half ring systems the divided ends of the vessels are inserted and after closing the instruments, the ends of the vessels are everted. Then continuous suturing or sutureless anastomosis of the vessels is carried out. After this is complete the united vessel can be removed from the instrument. The duration of the ischaemia is between 3 and 15 minutes. Anastomosis is carried out while the blood is flowing.

1st method: end-to-end anastomosis of the arteries with the aid of the instruments, end-to-side anastomosis of the veins by means of a temporary intravessel bypass using suturing (Figure 2). Result: thrombosis of the arteries: 4%, of the veins: 5% in 25 animals

2nd method: end-to-end anastomosis of the arteries and veins by instruments and continuous suturing. Results: Thrombosis of the arteries: 3%, of the veins: 5% in 25 animals

3rd method sutureless anastomosis of the arteries and veins using instruments and tissue adhesive. Result: thrombosis of the arteries: 5%, of the veins: 7% in 30 animals

Implantation of the ureter is better than end-to-end union of ureter ends.