Technique for placement of catheters in the common left coronary artery

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Satisfactory methods for chronic catheterization of the left anterior descendens and circumflex coronary arteries have been described (1–3). A technique is presented here for the acute and chronic catheterization of the common left coronary artery and the origins of its major branches; dissection is not required in this technique. Essentially the method consists of the passage of a pointed guide wire via the subclavian artery into the ostia and through the wall of the common left coronary artery. The wire is then used to pull an attached catheter into place. It has been used in acute experiments and in chronic preparations for as long as 1 month. A technique for the placement of occluding and non-occluding devices into the canine major septal artery for purposes of injections is also presented.

coronary catheterization; coronary septal artery

ECKSTEIN, Richard W., Howard E. Rowen, Jr., and Katsuro Shimomura. Technique for placement of catheters in the common left coronary artery. J. Appl. Physiol. 25(5): 636–637. 1968.—The construction of a device and its use for placement of catheters in the common left coronary artery and the origin of its major branches are described. Essentially, the technique consists of the introduction of a guide wire into the subclavian artery and through the wall of a coronary artery. The wire is used to pull an attached catheter into place. It has been used in acute experiments and in chronic preparations for as long as 1 month. A technique for the placement of occluding and non-occluding devices into the canine major septal artery for purposes of injections is also presented.

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CATHETERIZATION OF LEFT CORONARY ARTERY

FIG. 1. A: (a) Copper tube (guide) containing steel tubing (dotted lines); (b) pointed wire; (c) rubber tube. B: Expanding device. C: (a) Polyvinyl catheter with narrowed tip; (b) flared and cuffed intravascular catheter tip. The flare and cuff are 1\1/2 to 2 mm in diameter; 3, 4, and 5) cannulas for septal arteries. The solder mass is 2–2\1/2 mm in diameter. This size can be inserted into and will occlude the major septal artery in the majority of 18- to 20-kg dogs (see the text).


Marks placed previously with marking ink on the catheter a few centimeters from the expanded tip are helpful in ensuring that the catheter tip is in and remains within the artery not only during placement but also during acute experiments. The wire and expander are then disengaged from the catheter, which is refilled with heparin and stoppered. In chronic animals the polyethylene tube is removed from the subclavian artery, which is then ligated. In acute experiments the tube may be held in place with the snare or a newly placed ligature and serve as an intraarterial cannula. Bleeding has not been a problem. That which occurs after placement of the wire is decreased after the catheter is pulled into position. In some animals catheters have also been placed in the origins of left circumflex and anterior descendens arteries.

In the chronic animals catheters were fixed to surrounding tissue with ligatures and snug-fitting polyvinyl cuffs slid over the free end of the catheter. The catheters were exteriorized through puncture wounds, filled daily with concentrated heparin, closed with a snug stylus, and protected by a canvas jacket.

The catheters functioned for purposes of intracoronary injections and pressure measurements for as long as 4 weeks, at which time the tip was covered by endothelium. Microscopic examinations were not made after the animals were killed but a myocardial infarct 3 mm in diameter was definitely present in one of the four long-term animals.

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REFERENCES

