

## PRECAVAL ANOMALIES OF THE CAT

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The usual or normal precava of the cat is formed by the junction of the right and left innominate veins each of which receives an internal and an external jugular and a subclavian. Veins of an adult cat in which the innominates failed to join are described early in this paper, and later, attention is given to a specimen in which the coronary sinus empties into the precava.

In the first variation considered the innominates have not joined and the left descending vein follows the coronary groove around the dorsal aspect of the heart to enter the right atrium posterior to the entrance of the post cava. This is the usual location of the entrance of the coronary sinus. The ventricular myocardium is drained by several venous branches which empty into the anomalous structure. There were also a few venous twigs which drained directly into the atrium. The atypical vein appears to represent the left innominate and the coronary sinus which have remained connected. The variation therefore is a persistent anterior and common cardinal. The anastomosis which normally occurs across the anterior cardinals cephalad to the heart failed to appear in the present instance and embryonic channels remain as the adult, functional, veins. No other significant difference is present. The right side is typical with both the azygous and sternal veins present as branches entering the right precava, or in the present case, the right anterior and common cardinal veins. This latter vein

enters the right atrium in the same locality characteristic of the normal mammalian anterior vena cava.

Another adult cat possessed an unique vein which drained the blood from the ventricular myocardium into the otherwise normal anterior vena cava. This vein entered the dorsal aspect of the precava two centimeters posterior to the innominate junction. It drained almost the entire area of ventricular myocardium except for a few anastomosing twigs which emptied directly into the atrium. There was no coronary sinus entrance into the atrium. It is suggested that the peculiarly located vein draining the heart is the posterior portion of the anterior cardinal with the common cardinal. Again, the variant seems to be a persistent embryonic condition. When the right and left precaval veins (anterior cardinals) anastomosed, to form the single vessel which empties into the right atrium, the left vessel posterior to the anastomosis failed to degenerate and remained as a functional vessel. It is not certain what happened to the cardiac end of the common cardinal. It may have become occluded in the changes of the developing sinus and atrium or it may have never been open into the sinus venosus.

It is very probable that in the development of the anterior vena cava any significant variation is a retention of embryologic features. This fact has already been pointed out in connection with the post cava.