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RESEARCH ARTICLE
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THIRD CORONARY ARTERY

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Abstract
Heart is vascularized by two coronary arteries which arise from aorta. Right and left coronary artery takes origin from anterior and posterior aortic sinus respectively. Conal artery is a branch of right coronary artery which supplies right conal area. When conal artery takes origin from aorta then it is called as third coronary artery. Out of 108 human hearts third coronary artery was seen in two hearts.

Introduction

Human heart has four chambers and all are supplied by extensive network of blood vessels through coronary arteries. There are two coronary arteries, right and left which are the first branches of aorta. Both the arteries take origin from right anterior aortic and left posterior aortic sinus. These arteries have specific area of distribution. The area from where pulmonary trunk arises is called conal area and this area is supplied by conal artery which is a branch of right coronary artery usually. Sometimes this artery originates separately from aorta called extra artery or supernumerary artery. In addition to two coronary arteries there are other arteries which directly come from aorta called as supernumerary arteries. Sometimes supernumerary coronary arteries are present sometimes [1, 2]. These supernumerary arteries arises from aorta and passes through subepicardial adipose tissue of pulmonary conus and anterior side of the right ventricle, is called third coronary artery, preinfundibular artery or gentle Vieussens' artery [1,3,4]. Third coronary artery is more frequently found in adult hearts than in fetal hearts, concluding thereof that it develops only after birth [5,6]. Schlesinger described for the first time about third coronary artery which supplies the infundibulum of the right ventricle [7]. An arterial ring formed between third coronary artery and a branch of left anterior descending artery forms a collateral blood steam in coronary insufficiency. Most of the times this artery is missed during coronary angiography.

Accurate interpretation of coronary angiograms, assessment of severity of coronary insufficiency and appropriate planning of myocardial revascularization necessitates to know the incidence of third coronary artery [8]. The present study has been done to note the incidence of third coronary artery.

Material and methods

108 human hearts were collected from cadavers and dissected for coronary arteries. Each heart was thoroughly washed to remove blood clots and then tagged with a number for identification. After removing epicardium and fat, the right, left coronary arteries were dissected meticulously till its branches and anastomosis was observed. The aorta was dissected well and ostium of aorta was observed to see third opening of right conal artery. Photographs were taken.

Result and observation

Out of 108 hearts third coronary artery was found in 2 hearts.

Image 1 shows ostia of right coronary artery (1) and third coronary artery(2)

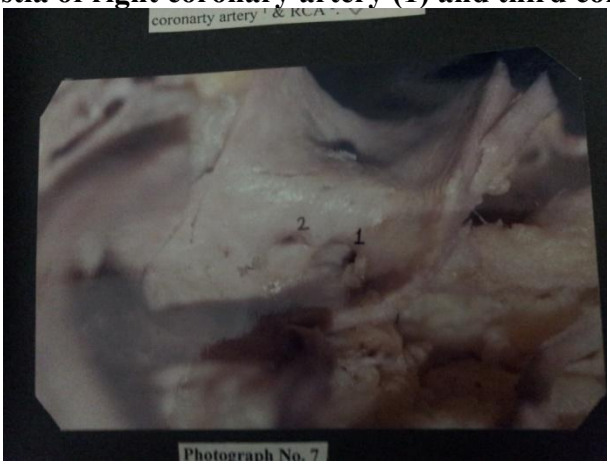
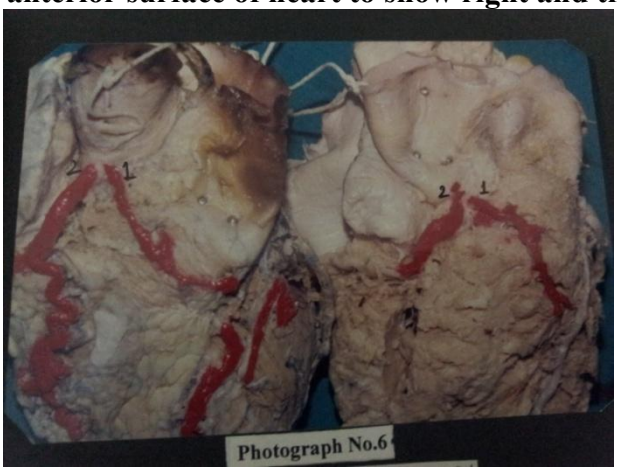


Image 2 shows right anterior surface of heart to show right and third coronary artery



Discussion

Human heart gets blood supply from two coronary arteries which arise from aorta. Lot of variations are seen in coronary artery which is a peculiarity of it. First branch of right coronary artery is conal branch which supplies infundibular area of right ventricle. When the same artery takes origin separately then it is termed as third coronary artery. The incidence of third coronary artery is variable and many authors studied third coronary artery which was 1.5 % [9], 8% [10], 64% [1] and 32% [11]. In the present study the incidence of third coronary artery is 1.8%. Supernumerary coronary arteries have been observed since the days of the early anatomists.

Third coronary artery is also called as supernumerary artery. Anastomosis of the third coronary artery with the anterior interventricular branch with formation of Vieussens' arterial ring. This arterial ring may be formed by the conal branch of the right coronary artery, but it is less significant, as it is more often enfolded with atherosclerotic process [12]. In 1904 Banchi injected 100 hearts through the aorta with a standard chalk mass. He reported that the first ventricular branch of the right coronary artery arose directly from the sinus of 'Valsalva in 33 per cent of human hearts, and found two such accessory arteries in 3 per cent of his series. Banchi stated that this vessel, which he called the "adipose artery," supplied the conus arteriosus and the superior portion of the sternocostal surface of the right ventricle [13].

Conclusion

Coronary artery and its branches are of prime importance. Clear understanding of RCA and LCA and it variations is essential for diagnostic and therapeutic procedures in patients with coronary artery disease (CAD) for successful outcome.

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