
On the anatomy of the breast, by Sir Astley
Paston Cooper, 1840

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On the anatomy of the breast - Of the arteries of the breast

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OF THE ARTERIES OF THE BREAST.

THESE vessels are subject to great variety, both in their origin and their course. Their sources seem to be of little importance, if the glandules of the breast receive a proper supply of arterial blood.

The same circumstance may be observed in other animals, that the arteries take their origin and course as is most convenient for the supply of the gland. In some, they observe the same origin and course as in women; but in others, they are derived from the epigastric, lumbar, intercostal, axillary, and internal mammary arteries.

The most common supply of arterial blood in the human subject is derived from the axillary and internal mammary arteries. The axillary sends two, and sometimes three branches of arteries, and the internal mammary generally three; but there are many smaller branches from different sources.

These arteries may be divided into posterior and anterior: the former passing from the axillary artery, and the latter from the internal mammary; and there is generally a large vessel entering the pectoral or costal surface of the breast,

and sending its branches through the gland, to meet the others upon the surface of the organ.

The posterior arteries are derived from the axillary.

First, from the *thoracica longa*, which arises from the axillary artery, and descending upon the chest at the outer edge of the pectoralis minor, passes over the origins of the serratus major anticus, to which it gives branches, and to four layers of intercostal muscles; and sending arteries into the cavity of the thorax through them, these ramifications anastomose with the aortic intercostal arteries.

As this artery passes upon the outer side of the gland of the breast, it sends branches into and upon it, more especially to the parts below the nipple.

But the true *external*, or *posterior mammary artery*, is sometimes a branch of the *thoracica longa*, and sometimes a separate vessel from the lower part of the axillary artery. It descends at the outer edge of the pectoralis major towards the nipple; it sends branches above and below the nipple, and into the nipple itself, and it also supplies the secretory structure of the breast.

The *thoracica suprema* also, after sending branches to supply the pectoralis minor and the pectoralis major, sends branches which perforate the latter muscle, and are distributed to the upper part of the breast.

Besides these posterior arteries, there are small branches from the aortic intercostal, which pass through the intercostal muscles with the direct branches of the dorsal nerves, and proceed with them to the breast.

The arteries on the sternal side of the breast are principally three.

They are derived from the internal mammary artery and from the mammary intercostal arteries*.

The internal mammary artery arises from the inferior part of the subclavian. It courses forwards and downwards into the cavity of the chest. It is situated upon the inner side of the cartilages of the ribs, close to their junction with the sternum, and in its course sends forth two sets of arteries internally, mammary intercostal arteries, which anastomose with the aortic intercostal. Secondly, it sends branches through the intercostal spaces between the cartilages of the ribs, which are distributed to the parts of the external surface of the chest, and some of them to the breast itself. After giving off these branches, it proceeds to the abdominal muscles, upon which it anastomoses freely with the epigastric artery.

* The intercostal arteries are from two origins: the posterior are from the aorta or aortic intercostal; the anterior from the internal mammary, or mammary intercostal arteries.

It is generally the second perforating branch of the internal mammary artery which descends to the breast. The fifth arising from a mammary intercostal artery also passes to the gland and nipple.

The second (sometimes the first or third) branch of the internal mammary artery perforates the intercostal muscles between the second and third cartilages of the ribs, and after passing the intercostal muscles, appears upon the fore-part of the chest. It then descends to the upper part of the nipple, anastomosing with the *thoracica suprema*, and with the fourth anterior artery, on the surface of the breast.

The fourth anterior artery passes between the fourth and fifth cartilages of the ribs, and proceeds directly and transversely, from the sternum to the nipple, when it anastomoses with the second, and these two, with the external mammary and *thoracica longa*.

Besides these most frequently formed arteries, the gland upon its pectoral surface, where it adheres to the aponeurosis of the *pectoralis major*, receives one, and sometimes two, deep-seated branches from the mammary intercostals, which, between the fourth and fifth, and fifth and sixth ribs, perforate the intercostal muscles, and pass into the pectoral or concave surface of the breast, supplying the gland with arterial branches, which freely anastomose with the superficial anterior and the arteries behind the nipple.

Besides these arteries, there are small branches from the third of the anterior or internal mammary artery, and some from the fifth and sixth.

The epigastric, as it anastomoses freely with the internal mammary artery, has some influence upon the circulation in the breast.

The arteries upon the cutaneous surface of the breast are lodged in the festoons formed by the ligamenta suspensoria, and proceed to the nipple. There, their extreme branches pass each other at the base of the nipple. They send branches forwards from the base to the apex of the nipple, which are parallel to each other, and divide into very minute branches, which supply the papillæ and the ducts. They also send branches from the base of the nipple backwards into the gland at its centre, and they freely anastomose with those arteries which enter the back of the gland, and they then distribute their ramifications to its substance.
