

Abstract

BACKGROUND:

The functional significance of myocardial bridging remains controversial. The bridge morphology and structure of the tunneled vessels may modify its ultimate clinical effects.

OBJECTIVE:

To describe the morphological characteristics of myocardial bridges and their influence on coronary histology.

DESIGN:

A descriptive cross-sectional study.

METHODS:

One hundred and nine formalin-fixed adult hearts were evaluated by dissection for these data: prevalence, site, lengths and depths of myocardial bridges. Vessel segments proximal and distal to the bridged portion were also processed for histology and stained to elaborate smooth muscle, collagen and elastic fibers. Stereology was also employed to compare the relative sizes of the tunica intima and the vessel wall to lumen ratios.

RESULTS:

Myocardial bridges were found in 40.4% of the hearts, most commonly in the left anterior descending artery (LAD). The average length of the bridges was 22.66 ± 11.94 mm while the depth was 1.83 ± 0.98 mm, with only 11% being long (34.87 mm - 50 mm) and 9% of them being deep (3.46 mm - 5.00 mm). The tunica intima was thickest proximal to and thinnest under the myocardial bridge. The intima of the proximal segment was also more elastic. An elaborate perivascular 'cushion' of adipose tissue intervened between the intramural coronary and the surrounding myocardium.

CONCLUSIONS:

Most myocardial bridges are superficial and short. Tunica intima under myocardial bridges is spared from "atherogenesis". The thick perivascular space around the bridged segment may protect it from extreme compression.

KEYWORDS:

Histological organization, Morphology, Myocardial Bridge