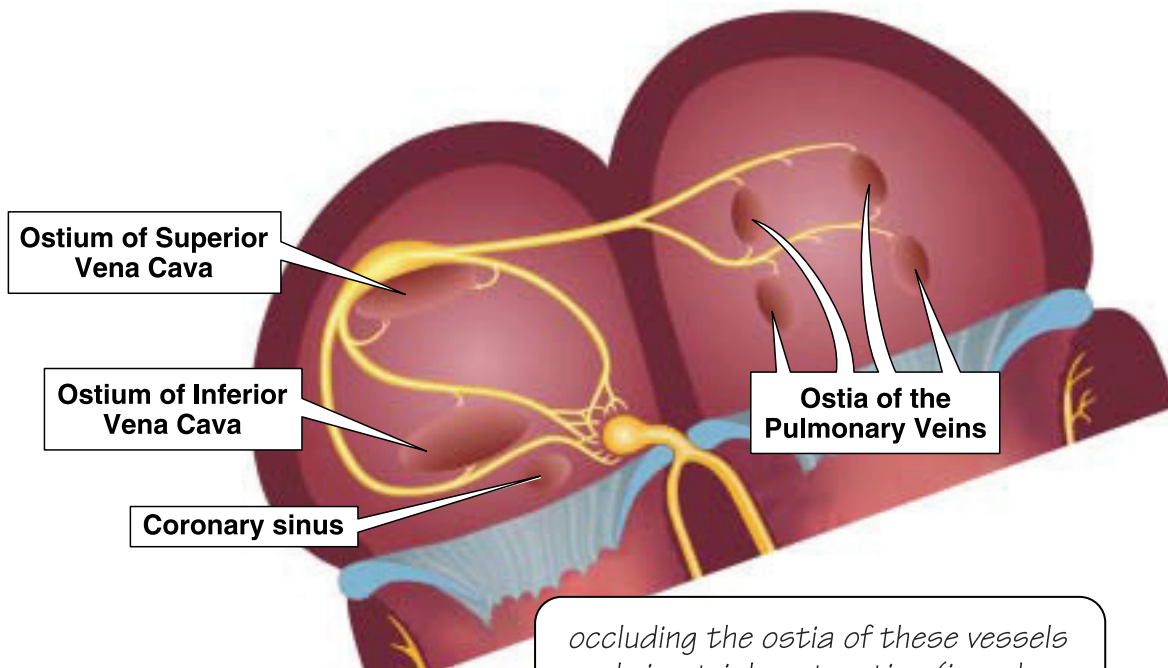


Teleology of the atrial conduction system



The atrial conduction system rapidly transmits depolarization from the SA node to the AV node.

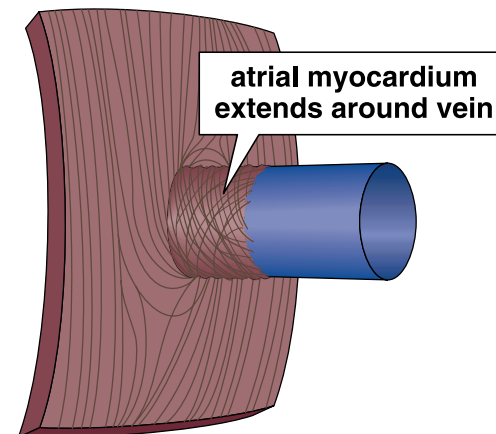


The atrial conduction system also provides early depolarization to the atrial myocardial sleeves that surround the terminations of the large veins entering the atria,^É

occluding the ostia of these vessels early in atrial contraction (in order to prevent regurgitation),⁵⁵ forcing all the blood in the contracting atria to pass only through the AV valves.



atrial wall
(exterior view)



The internodal tracts conduct depolarization from the SA node so fast that the AV node is stimulated early in the P wave, before most of the atria are depolarized.¹⁷ Atrial myocardial fibers extend around the pulmonary veins up to 2 cm beyond the left atrium⁴⁴ and around both venae cavae up to 5 cm beyond the right atrium.⁴⁸ These muscular “sphincters” are innervated by the atrial conduction system [examine illustration closely] to constrict the large vein ostia early in atrial contraction.⁴⁵ Conduction fibers from Bachmann’s bundle pass to the ostia of the four pulmonary veins,⁵⁶ while the three internodal tracts innervate the ostia of the venae cavae, so there are also foci of automaticity in these locations.⁵⁹ Besides the pulmonary veins⁵⁶ and venae cavae,^{46,57} the cardiac vein (terminates as the coronary sinus) has foci,^{58,60} suggesting similar, early occlusion during atrial contraction.