



Fig. 5. Cross-sections of the human penis. (A) In this view at the level of the coronal sulcus, note that the vascular distribution within the neurovascular bundle looks like a battery of gunshots. The number of veinlets is numerous (up to 29 clinically). Anatomically the number of veins is increasingly reduced proximally. The dorsal arteries shift laterally to the 9 and 3 o'clock positions, respectively. (B) Here in the midpoint of the pendulous portion, the cavernosal veins are seen below the bilateral para-arterial veins, dorsal arteries, and deep dorsal vein, in the vicinity of the tunica albuginea. A communicating vein exists between the medial and lateral para-arterial veins (see right dorsal artery mounts). (C) Distal to the penile hilum, the arrow points to the valve within the right cavernosal vein. The deep dorsal vein is artificially pushed upward because of dissection and tissue dryness.

in the other 6 cadavers, drainage was not traceable proximally, but a tiny one accompanied the dorsal artery into the pelvis.

At the level of the coronal sulcus, the para-arterial veins, dorsal artery and deep dorsal vein could be seen to lie along an imaginary arc (Fig. 5), with the cavernosal vein below and in intimate contact with the underlying tunica. Proximally, the dorsal artery rises above this line—much like an airplane taking off—and the deep dorsal vein dives gradually below; thus, the cavernosal vein lies in the deepest site for its entire course.

DISCUSSION

The tunica albuginea of the corpora cavernosa is a bilayered structure with multiple sublayers in which emissary veins intermingle.¹⁰ The subtunical venular plexus collects sinusoidal blood¹¹—the origin of the emissary veins (Figs. 3, 4). Interestingly, in our dissection, the majority of the emissary veins were often found to run in an oblique path between the inner and outer layers of the tunica albuginea, whereas the arteries took a more direct route through the tunica. It was not unusual to see twin tunnels in 1 venous chamber located exactly at the transition between the inner circular and outer longitudinal tunical layers. The neurovascular bundle lies on the dorsal aspect of the corpora cavernosa; it assumes the shape of the tunica albuginea, i.e., convex distally and gradually concave proximally.¹²

Although the cavernous vein has been traditionally described in the literature as short,^{13,14} in our study it was found to run almost the entire length of the corresponding corpus cavernosum, even though distally it becomes smaller.¹⁵ It sends a communicating vein, which may be bigger than itself, to the deep dorsal vein and numerous, albeit small, emissary veins proximally to the corpora cavernosa. The para-arterial veins—found consistently in our 9 cadavers—have heretofore not been reported in the literature. They are always prominent in the pendulous portion of the penis; the medial one communicates with the glanular sinusoids and cavernosal vein, and the lateral one commu-