Journal of Pediatric Urology (2017) xx, 1–4

How I do it

Tunica vaginalis pedicle flap for repair of ruptured testis: A single-center experience with four patients☆

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Keywords
Testicular rupture; Tunica vaginalis flap; Testicular trauma

Received 4 October 2016
Accepted 17 April 2017
Available online xxx

Summary
Management of testicular rupture with a large tunical defect may not be feasible without excision of viable tissue. This study describes the use of a vascularized tunica vaginalis flap, without debridement of viable tissue, in four adolescents. Postoperative ultrasound showed good blood flow and 80% volume of the contralateral testis in two cases. Postoperative exam revealed normal exam and ultrasonographic appearance in three patients, the fourth was demonstrated to be small and undescended during evaluation of contralateral testicular torsion. This approach is recommended in cases of large tunical defects, as it avoids the debridement of viable testicular tissue.

Introduction

Traumatic testicular rupture is a rare but potentially devastating event. It is most likely to occur when the testis is forced against the inferior aspect of the pubic rami or the symphysis pubis. Less than one in ten patients require orchiectomy at the time of early exploration; however, delayed exploration is associated with nearly 50% orchiectomy rate [1]. At the time of operative exploration, the goal is debridement of necrotic tissue and re-approximation of the tunica albuginea to preserve testicular tissue, fertility, and hormonal function. Although the standard care is debridement and primary repair, it is believed that the potential function and cosmetic defects of sacrificing healthy testicular tissue warrant alternatives to this standard approach. The present study describes experience of four patients with ipsilateral TV pedicle (vascularized) flaps to close large defects that cannot be approximated without debridement of viable tissue at initial exploration.

Technique

Four adolescent males (ages 15 years and 6 months to 16 years and 9 months) were explored for testicular rupture at the present institution between January 2012 and August 2015. The diagnosis was confirmed by ultrasound in three of the four cases (Fig. 1A and B). One case involved an intraoperative consultation for iatrogenic testicular rupture at the time of orchidopexy and contralateral orchiectomy for testicular torsion. In all blunt trauma cases, the scrotal skin was intact. Each patient was taken for early (<72 h after injury) exploration in the operating room, most within 24 h. At the time of exploration, a large defect(s) was identified and it was not possible to re-approximate the edges of the tunica without the need for debridement of viable testicular tissue. In lieu of debridement of viable testicular tissue an ipsilateral vascularized pedicle TV flap was created (Fig. 2). A rectangular-shaped flap was outlined on the tunica vaginalis, preserving a vascularized base, as outlined in Fig. 2 (middle inset). 4-

☆ Poster presentation at John M. Templeton Jr. Pediatric Trauma Symposium, March 2016.

http://dx.doi.org/10.1016/j.jpurol.2017.04.013

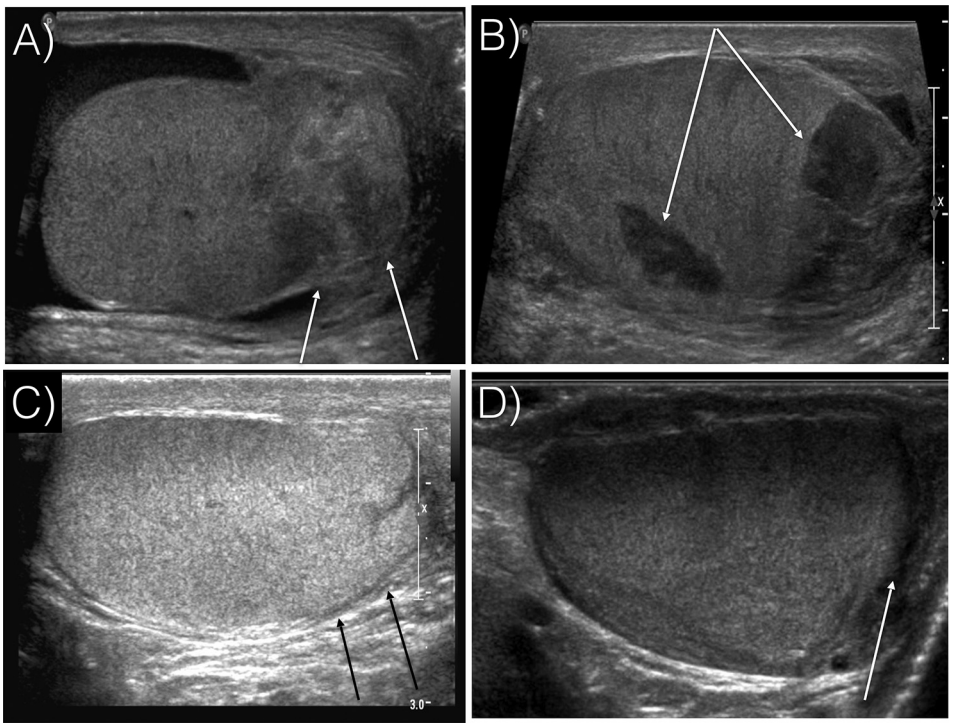

Figure 1 Pre-operative scrotal ultrasounds with arrows depicting: A) disruption of the tunica albuginea and B) intratesticular hematoma. Six-month postoperative ultrasounds reveal: C) restoration of the tunica albuginea and D) resolving intratesticular ultrasound.

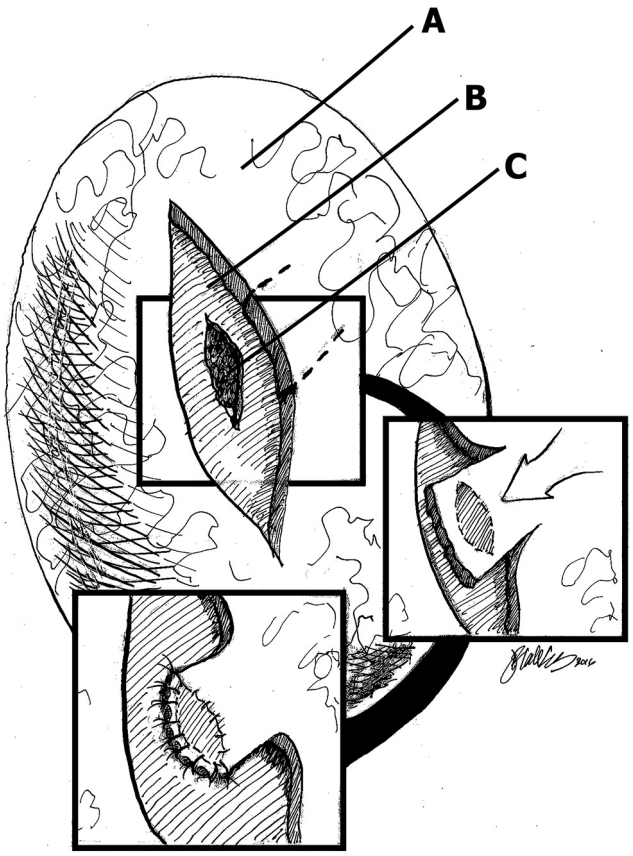

Figure 2 An appropriately sized flap. A) Tunica vaginalis is identified; the flap is mobilized (top inset) and sewn directly to the edge of B) tunica albuginea with running 4-0 PDS sutures (middle inset). The C) testicular defect at the site of rupture is covered completely by the pedicle tunica flap (bottom inset).

Please cite this article in press as: Damle RN, et al., Tunica vaginalis pedicle flap for repair of ruptured testis: A single-center experience with four patients, Journal of Pediatric Urology (2017), http://dx.doi.org/10.1016/j.jpurol.2017.04.013