Reconstruction of the urethral defects with autologous fascial tube graft in a rabbit model.

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Abstract

AIM:
To investigate the feasibility of the autologous fascia graft in urethra defect reconstruction.

METHODS:
In 24 adult male rabbits, a standardized defect (17 mm) was created within the midportion of each urethra. Two-cm long fascial tube grafts were interposed between the cut ends of the urethra. Twenty-four rabbits were divided into 12 groups. At 0, 3, 10, 15, 21, 30, 45, 60, 90, 120, 150, and 180 days postoperatively, one group was killed. In the first four groups, rabbits were killed and specimens were obtained for histological examination. After 21 postoperative days, in the subsequent eight groups, retrograde urethrograms were carried out to evaluate urethral patency and caliber, then rabbits were killed and specimens were obtained.

RESULTS:
In the histological study, advancement of the urethral transitional epithelium along scaffold provided by the fascial graft was determined. At the 30th day, the new urethra was completely covered with the transitional epithelium. Fistula formation was observed in two of 24 rabbits. In urethrograms, narrowing was determined in three of 16 rabbits.

CONCLUSION:
For segmental urethral reconstruction, fascial graft is a good urethral substitute because of its rapid epithelization capacity, low contraction degree and thinness. We therefore propose the use of fascial grafts for reconstruction of male-urethra defects in humans.