

Immunologically Non-Treated Vascular Xenografts in Long-Term Survival Animals

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Abstract : Immunologically non-treated and acellularized porcine xenografts were implanted as an arterial graft in goats and comparatively analyzed for the explanted grafts with gross observation, as well as light microscopy and immunohistochemistry, following the predetermined periods. For immunologically non-treated xenografts, bilateral porcine carotid arteries were harvested, and after short-term freezing at -70°C, were implanted into goats. The preparation of acellularized xenograft vessels has been performed with NaCl-SDS solution and stored at the freezer until use. The goats were randomly assigned for three periods of observation (3, 6, and 12 months after implantation), four animals were observed at each of these times. Periodic ultrasonographic examinations were performed during observation period. Following the predetermined periods, the explanted grafts were analyzed. Among 12 animals, one goat died prematurely, and a total of 22 grafts were evaluated. Gross observations revealed non-thrombotic patent smooth lumens. Microscopic examinations of the explanted grafts showed satisfactory cellular reconstruction up to the 12-month observation period. The proportions of CD3 positive T lymphocytes among inflammatory cells infiltrations were very low. In conclusion, these findings, as a whole, suggest that porcine vessel xenografts can be clinically acceptably implanted in the goats as a form of small-diameter vascular graft, regardless of the acellularized xenograft or immunologically non-treated xenograft.

Keywords : xenograft, arterial graft, long-term survival animals, immunology

Conference Title : ICMSTE 2014 : International Conference on Medical Science, Technology and Engineering

Conference Location : Singapore, Singapore

Conference Dates : July 05-06, 2014