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JOURNAL ARTICLE

Epididymal obstruction during development results in antisperm autoantibodies at puberty in rats

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An autoimmune response to sperm occurs after vasectomy, but there is little information on whether similar reactions occur after obstruction of the male reproductive tract at other points. Male Lewis rats received bilateral ligation of the corpus epididymidis or a sham operation at age 10 days, and the subsequent systemic antisperm autoantibody responses were compared to those observed following obstruction of the vas deferens. After sexual maturation, rats with epididymal ligations had antisperm antibodies on an enzyme-linked immunosorbent assay that were significantly higher than those of sham-operated animals and did not differ from antibody levels in vasectomized rats at the same ages. Western blot analysis showed that certain sperm proteins were recognized by antisperm antibodies after both epididymal ligation and vasectomy, including the previously identified "dominant" autoantigens at 73-83, 68-72, 48, 42, and 22 kDa. On the other hand, sera from rats with epididymal ligations recognized 60 and 52 kDa proteins that were not bound by most postvasectomy sera. Conversely, 42-48 and 38-42 kDa bands were more strongly and frequently stained after vasectomy than after epididymal ligation. The results demonstrate that antisperm antibodies are produced after obstruction of the epididymis and that the magnitude of the response is comparable to that after vasal obstruction. Differences in autoantigens recognized after epididymal and vasal obstructions may reflect maturational changes in sperm components that take place during the passage of spermatozoa through the epididymis.

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