

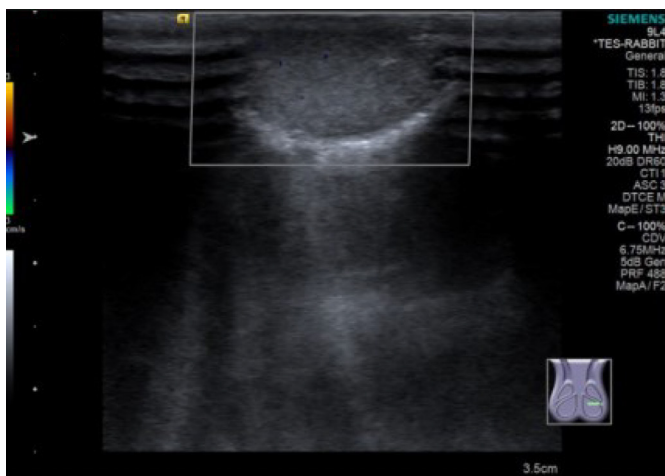
Supplementary Table 1. Johnsen scoring system

Scores	Histopathological features
10	Complete spermatogenesis with many spermatozoa. Germinal epithelium organized in a regular thickness leaving an open lumen.
9	Many spermatozoa present but germinal epithelium disorganized with marked sloughing or obliteration of lumen.
8	Only few spermatozoa (<5–10) present in section.
7	No spermatozoa but many spermatids present.
6	No spermatozoa and only few spermatids (<5–10) present.
5	No spermatozoa, no spermatids but several or many spermatocytes present.
4	Only few spermatocytes (<5) and no spermatids or spermatozoa present.
3	Spermatogonia are the only germ cells present.
2	No germ cells but sertoli cells are present.
1	No cells in tubular section.

Supplementary Table 2. Histological changes of animals from complete and incomplete testicular torsion group

Histological changes	Complete testicular torsion group (n=20)	Incomplete testicular torsion group (n=20)	Total animals (n=40)
Normal testicular spermatogenesis	0	0	0
Hyospermatogenesis	3 (15.0)	12 (60.0)	15 (37.5)
Spermatogenic arrest	16 (80.0)	8 (40.0)	24 (60.0)
Sertoli cell-only syndrome	0	0	0
Absence of seminiferous tubules	1 (5.0)	0	1 (2.5)

Values are presented as the number of animals (%).



A



B

Supplementary Fig. 1. Representative images of ultrasonography in one rabbit with complete testicular torsion that is excluded.

A. During the operation, color Doppler flow imaging shows that there is no blood flow signal in the torted testis (left). **B.** Testicular blood flow is restored after modeling.