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Letter to the Editor

Letter to the Editor re: "Gubernacular discontinuity and abnormal distal fixation in cryptorchidism: Challenging the classical concept"

In their recently published article, Dr Kato et al. refer to their previously published study, in which they described the ligament in female children with inguinal hernia as round ligament and considered it homologous and equivalent to the male gubernaculum [1]. The authors briefly conclude that the discontinuity of the gubernaculum and the abnormal distal fixation of the gubernaculum contradict conventional views on gubernaculum invagination and suggest that abnormal distal fixation may contribute to a failure of testicular descent.

Our previous research and other studies have found no similarities between the ligament in the female inguinal hernias (which was described as questionably round) and the male gubernaculum. We hypothesized that the ovary in hernia sac to mimic testicular descent, and analyzed the ligament within the hernia sac using histopathological and immunohistological examinations [2,3]. We found that the ligament, which terminates in the processus vaginalis of a female inguinal hernia, consists of striated and smooth muscle fibers, nerves, and blood vessels, as well as steroid receptors (estrogen and progesterone). These findings contradict the known features of both the suspensory ligament of the ovary and the round ligament. We therefore concluded that this ligament might play a role in the final position of the ovary in a female inguinal hernia. Based on the knowledge that the gubernaculum undergoes various changes in content and morphology during testicular descent, we analyzed the morphological features of the proximal (testicular insertion) and distal (ectopic insertion) gubernaculum tissue obtained during orchidopexy using light and electron microscopy [4] (Fig. 1). Although light microscopic examinations showed no differences, electron microscopic examinations revealed excessive capillary development in the proximal gubernaculum, associated with an excess of intermediate filaments and transport vesicles and indicated increased vascular proliferation. In comparison to the distal (ectopically inserted) gubernaculum, increased fibroblastic activity was observed at the proximal gubernaculum. Immunohistochemical analyses revealed no androgen or estrogen receptors within the gubernacular tissue. Different cellular dynamics of the proximal and distal insertions of the gubernaculum could play an important role in clarifying the etiology of the undescended testis. The results of our electron microscopic investigations of the gubernaculum could provide further insights into its functional anatomy.

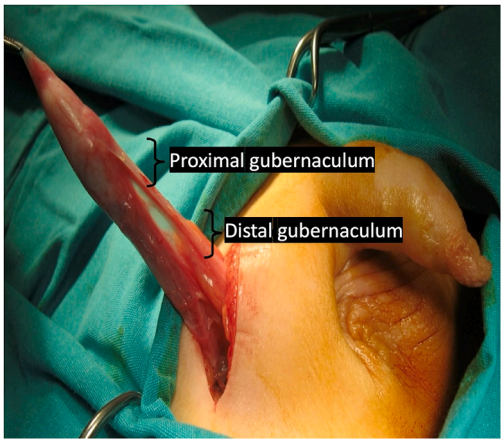

Fig. 1 Proximal (testicular insertion) and distal (ectopically inserted) gubernaculum tissue observed during orchidopexy.

Declaration of Generative AI and AI-assisted technologies in the writing process

Generative AI and AI-assisted technologies were NOT used in the preparation of this work.

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Conflict of interest

None.

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