

Clinico-pathological study and surgical management of benign prostatic hyperplasia with perineal hernia in a dog

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Abstract

The present study describes the clinico-pathological findings of benign prostatic hyperplasia along with perineal hernia in a six-year-old intact male Spitz dog. The dog was presented to the Department of Veterinary Clinical Complex, LUVAS, Hisar, with a history of swelling in the perineal region along with cessation of urination. The clinical examination revealed that swelling was fluctuating in nature, and it was diagnosed as a perineal hernia of the right side. Ultrasonographic examination showed the presence of urinary bladder and prostatic mass in the herniated swelling. Under general anaesthesia, perineal hernia was corrected surgically by herniorrhaphy. The prostate was greatly enlarged and was suspected as a tumor mass; hence, it was excised and processed for histopathology after fixation in 10% neutral buffered formalin. After prostate was excised, vesicourethral anastomosis was performed. Histopathological examination of excised mass of prostate gland revealed benign prostatic hyperplasia. It was characterized by hyperplasia of glandular epithelium with occasional presence of papillary folding. Based on clinical examination, ultrasonography and histopathological findings, the case was diagnosed as benign prostatic hyperplasia along with perineal hernia. Post-operative care was advised as usual. No post-operative complications were reported till two months after surgery.

Keywords: Benign prostatic hyperplasia, Dog, Perineal hernia, Prostatectomy

Highlights

- No post-operative complications were reported in the present study.
- Urination and defecation were normal after surgery.
- The animal resumed normal feeding and drinking habits on the same day of surgery.
- The animal made an uneventful recovery post one month of surgery.

Benign prostatic hyperplasia involves an increased number as well as the volume of non-inflammatory prostate epithelial cells, either in simple or complex form (Nizanski, 2014). Age represents a major contributing factor in the development of cystic hyperplasia, and middle-aged to older un-neutered dogs are more susceptible (Kim, 2022; Palmier *et al.*, 2022). Associated clinical signs include constipation, tenesmus, hematuria, and urethral stenosis due to an enlarged prostate (Pinheiro, 2017). Surgery is the treatment of choice for perineal hernia condition. Histology of prostate gland in dogs suffering from prostatic hyperplasia reveals fibrosis of the gland and hyperplasia of acinar epithelium (Das *et al.*, 2017). Prostatectomy involves either partial or complete surgical resection of the prostate. There are a few reports related to prostatectomy using perineal approach.

An intact six-year-old male Spitz dog was brought to the Department of Veterinary Clinical Complex, LUVAS, Hisar, with the chief complaint of swelling on

the right perineal region (Fig. 1), along with cessation of urination. Upon physical examination of the swelling, a fluid-filled mass was felt inside it. Radiograph in lateral recumbency suggested entrapment of mass in the swelling (Fig. 2), and ultrasonography revealed the presence of urinary bladder along with prostate in the hernial sac (Fig. 3). Hence, the case was diagnosed as perineal hernia.

The animal was pre-medicated with atropine sulphate (0.02 mg/kg bw) subcutaneously and thereafter sedated with xylazine hydrochloride at 1 mg/kg bw intramuscularly. Urinary catheter was placed after sedating the animal. Intravenous catheter was positioned in the cephalic vein of right forelimb, and induction was done using 1:1 mixture of xylazine and ketamine till effect. Anesthesia was maintained using isoflurane 2-4%, depending on the depth of the surgical plane required. Surgical correction of perineal hernia was done by anatomical repositioning of hernial content (Fig. 4) while placing the urinary bladder back

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Surgical management of perineal hernia with benign prostatic hyperplasia



Fig. 1. Dog presented with right side perineal hernia



Fig. 2. Radiograph: Soft tissue opacity



Fig. 3. Ultrasonographic examination: Anechoic urinary bladder and hyperechoic prostate



Fig. 4. Bladder and prostate in excised hernial sac

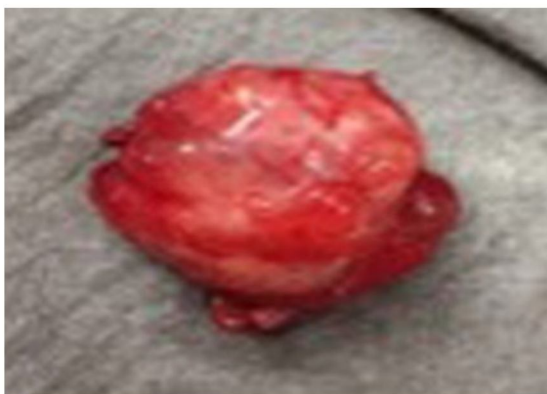


Fig. 5. Excised prostate mass

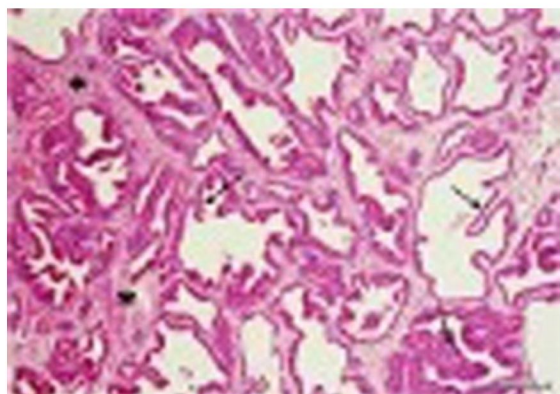


Fig. 6. Photomicrograph depicting benign prostatic hyperplasia characterized by the hyperplasia of glandular epithelium with presence of papillary infoldings projecting into lumen of glands (arrows) and increased amount of fibrous stroma (asterisks), H&E x100

into pelvic cavity. Prostate was isolated from the surrounding tissue by blunt dissection and taking care of neuro-vascular bundles. Urethra was transected close to prostate, and withdrawing the catheter into membranous urethra. Since the prostate was very much enlarged and was suspected of being tumorous in nature, it was excised (Fig. 5) and sent for histopathology. Then, end-to-end urethral anastomosis was made with Vicryl 4-0 suture in a simple continuous pattern.

The excised enlarged prostate was processed for histopathology after fixation in 10% neutral buffered formalin. Grossly, the cut surface of the excised mass of enlarged prostate appeared light pink to white in color and smooth in texture. Histopathological examination of excised mass of prostate gland revealed benign prostatic hyperplasia. It was characterized by hyperplasia of glandular epithelium with occasional presence of papillary folding (Fig. 6). The acini were lined by a single layer of columnar epithelial cells with intact basement membrane. A few acini appeared cystic. At places, the interlobular fibrous connective tissue stroma was increased, and it revealed the mild to moderate infiltration of mononuclear cells, mainly lymphocytes, in scattered areas.

In dogs older than 6 years of age, complex hyperplasia occurs, characterized by the presence of cystic lesions mixed with glandular hyperplasia and trophic glands separated by an increased amount of stroma (Sun *et al.*, 2017). Similar to the present case, Zambelli *et al.* (2022) have successfully performed prostatectomy in six dogs with underlying perineal hernia condition. Prządka *et al.* (2019) performed

successful complete prostatectomy in a dog with prostatic cancer.

The post-operative treatment included ceftriaxone at 20 mg/kg and meloxicam at 0.5 mg/kg both intramuscularly administered along with intravenous fluid therapy. Urinary catheter was kept for 15 days post-operative, and continuous flow of urine was maintained successfully. The owner was suggested to provide with loose diet and laxatives to the dog. The case showed an uneventful recovery after 1 month of surgery. No post-operative complications were reported till two months after surgery, and a normal flow of urine was present. In conclusion, perineal hernia with benign prostatic hyperplasia can be successfully managed surgically by complete prostatectomy and anatomical repositioning of hernia contents.

Conflict of interest: Authors declare no conflict of interest.

Author's contribution: SK, S, RN: Performed the surgery; BLJ, D: Studied histopathology of the sample; S, DKT: Assisted in writing and technical part of this study.

Data availability statement: Necessary data is there in relation to this case and upon request it would be presented.

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