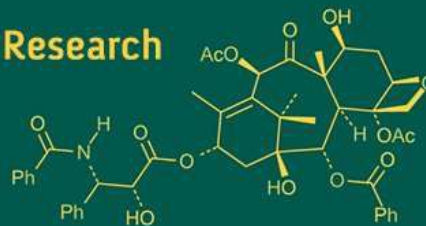
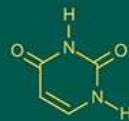
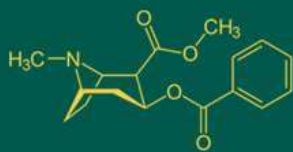


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Pre-operative radiography and ultrasonography findings in cats with lower urinary tract obstruction

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Abstract

A comprehensive study was conducted at Department of Veterinary Surgery and Radiology, Veterinary Clinical Complex, Rajendranagar, Hyderabad, Telangana to record pre-operative radiography and ultrasonography findings in cats with lower urinary tract obstruction. Male cats were more prone to obstruction compared to female cats because of their long and narrow penile urethra. Clinical and physical examinations revealed signs of dysuria, stranguria, hematuria and an inflamed, protruded penis. Abdominal palpation of the bladder showed firmness and the cats exhibited pain and discomfort upon palpation. Pre-operative plain radiographs in two views i.e., rightlateral and ventrodorsal, revealed mild to severe bladder distension, with dorsal and cranial displacement of abdominal organs in almost all cats. Pre-operative ultrasonography revealed mild to severely distended bladders with sludge present in 75% cases and cystitis in 50% of cases.

Keywords: Feline lower urinary tract obstruction, pre-operative radiography and ultrasonography

Introduction

A common multifactorial condition that primarily affects male cats is feline lower urinary tract disease (FLUTD). Cats with FLUTD are presented with clinical symptoms associated with bladder and urethral abnormalities. If left untreated, FLUTD most often leads to urinary obstruction. To treat this condition, the obstruction must be removed either through urethral catheterization aided with retrograde urohydropulsion or by perineal urethrostomy depending on the location of obstruction. A thorough understanding of the incidence of FLUTD is vital for improving the quality of life in feline patients with FLUTD. A study was carried out to record pre-operative radiography and ultrasonography findings in cats with urethral obstruction.

Materials and Methods

The present study was conducted to record pre-operative radiography and ultrasonography findings at the Department of Veterinary Surgery and Radiology, College of Veterinary Science, Rajendranagar, Hyderabad, Telangana. All the cats were subjected to routine clinical and physical examination to exclude any concurrent diseases. Survey radiographs of the abdomen were taken by placing animal in lateral and ventro-dorsal recumbency with the hindlimbs extended backwards to visualize the bladder. The aim of radiographic examination was to check for the presence of calculi/plugs. The cats were prepared for ultrasonography by clipping or shaving hair over the caudal abdominal area. ultrasonography of the abdomen (B Mode) was performed on all tom cats under the study by placing them either in lateral recumbency or supine position to rule out the presence of urethral plugs, calculi, sludge, and cystitis.

Results and Discussion

The cats with urethral obstruction displayed the signs of haematuria, dysuria, stranguria, distended, firm bladder, distended abdomen, inflamed and protruded penis. Palpation of the abdomen in each of these individuals showed an extremely tense, palpable bladder. When the bladder was palpated, most of the cats displayed discomfort. These findings were in accordance with the observations of Kruger *et al.* (1991) ^[5], Saevik *et al.* (2011) ^[7], Segev *et al.* (2011) ^[8].

Two plain orthogonal views of the right lateral and ventrodorsal radiographs of abdomen were taken prior to catheterization to rule out the presence of calculi. Abdominal radiographs were negative for the presence of calculi and they displayed mild to severely enlarged bladders with cranial and dorsal displacement of abdominal organs. These symptoms reported in the present study were comparable to the findings of Ergin *et al.* (2018) ^[2], Heseltine (2019) ^[4] and Gokulakrishnan and Meena (2020) ^[3]. Pre-operative ultrasonography of the abdomen was performed to evaluate the presence of calculi, sludge or sediment in the bladder. All cases were subjected to ultrasonography which showed distended bladder having mild to moderate sludge along with cystitis. Most of the cases had enlarged kidneys. Pre-operative ultrasonography revealed mild to severely distended bladders with sludge present in 75% cases with cystitis in 50% of cases. These findings were consistent with those reported by Remichi *et al.* (2020) ^[6], Abdel-Saeed *et al.* (2021) ^[1] and Gokulakrishnan and Meena (2020) ^[3].

Conclusion

Radiography and ultrasonography helped in confirming the diagnosis. Abdominal skiagram of pelvic and penile urethra was found to be useful in assessing the bladder integrity, shape, anatomical location and identifying radiopaque calculi. Abdominal ultrasonography was helpful to determine the thickness of bladder wall, radiolucent calculi, floaters/sludge and neoplasms. However, using ultrasonography to examine the entire urethra for the presence of calculi or plugs was unsatisfactory.

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