

FEMORAL HEAD AND NECK OSTECTOMY AS AN EFFECTIVE TREATMENT FOR TRAUMATIC AND CHRONIC CONDITIONS EFFECTING THE COXOFEMORAL JOINT IN DOGS AND CATS

V. Mahesh,¹ G. Karajagi,² C.L. Sunil³ and B.N. Nagaraja⁴

¹Assistant Professor, ²Contractual Teacher, ³Ph.D. Scholar, ⁴Professor & Head, Department of Surgery and Radiology, Veterinary College, KVAFSU, Hebbal, Bengaluru-560024, Karnataka.

DOI 10.29005/IJCP.2023.15.2.151-153}

[Received: 18.05.2023; Accepted: 09.11.2023]

How to cite this article: Mahesh, V., Karajagi, G., Sunil, C.L. and Nagaraja, B.N. (2023). Femoral Head and Neck Ostectomy as An Effective Treatment for Traumatic and Chronic Conditions Effecting the Coxofemoral Joint in Dogs and Cats, *Ind. J. Canine Pract.*, 15(2): 151-153.

Surgical management of various orthopaedic conditions in dogs and cats like luxation of coxo-femoral joint due to trauma (n=3), delayed femoral head fracture (n=1), Legg-Calve-Perthes disease (n=2), osteoarthritis (n=1) and hip dysplasia (n=15) was done by femoral head neck ostectomy. All the cases had clinical signs like varying degree of lameness in hindlimbs and the conditions were diagnosed by radiological examination of pelvis. All the cases showed recovery and improvement in lameness post-operatively and no major complications was observed in the present study

Keywords: Femoral head and neck, Hip dysplasia, Ostectomy, Osteoarthritis, Legg-Calve-Perthes disease.

The Hip joint affections are the common orthopaedic conditions recorded in companion animals practice. The coxo-femoral joint affections are hip dysplasia (54%) and Osteoarthritis (28%) Fracture luxations (18%) are the more common conditions recorded by Prasad *et al.*, (2012). The osteoarthritis (OA) seen in dogs is secondary to joint injury, joint instability or developmental abnormalities. Clinical signs of OA in dogs include lameness and joint pain. (Mortellaro, 2003). Nonsurgical management of hip dysplasia includes nutritional recommendations, weight control, exercise restriction, physical rehabilitation, pain management, and nutraceutical supplements (Todhunter and Lust, 2003). Femoral head and neck ostectomy is used to provide pain relief in patients with coxo-femoral joint-related diseases, such as severe hip dysplasia and advanced osteoarthritis, or for indications such as comminute or complicated fractures of the femoral head, neck or acetabulum where primary repair is not feasible, avascular necrosis of the femoral

head such as Legg-Calve-Perthes disease or chronic or recurrent coxo-femoral luxations (Piermattei *et al.*, 2006). The procedure should be reserved for patients with debilitating osteoarthritis of the coxo-femoral joint that is unresponsive to nonsurgical management and for which other surgical therapies are not options (Engstig *et al.*, 2022). By removing the femoral head and neck and allowing the development of a fibrous pseudoarthrosis, pain, free ambulation usually occurs.

Materials and Methods

Present study was conducted in the 22 cases of dogs and cats with different hip affections like luxation of coxo-femoral joint due to trauma (n=3), delayed femoral head fracture (n=1), Legg-Calve-Perthes disease (n=2), Osteoarthritis (n=1) and hip dysplasia (n=15) which were presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Bengaluru over a period of 12 months. The cases were diagnosed based on history, clinical signs and

radiological examination (Fig. 1 & 2). Complete blood count and serum biochemical profiles were done in all the cases. Dogs and cats were kept off feed and off. Dogs were pre-anesthetized using Atropine sulphate @

0.045 mg/kg BW and Xylazine hydrochloride @ 1 mg/kg BW intramuscularly. After a gap of 10 minutes anaesthesia was induced using Thiopentone using Thiopentone sodium @ 12.5 mg/kg B.W. till the effect. Cats were



Plate 1: Pre-operative radiograph showing osteoarthritis of coxo-femoral joint



Plate 2: Post-operative radiograph showing removed femoral head and neck



Plate 3: Prepared surgical site for Femoral Head and Neck Osteotomy



Plate 4: Cranio-lateral incision Subcutaneous tissue was undermined followed by transection of tendinous insertion between superficial gluteus and tensor fascia lata



Plate 5: Performing osteotomy using orthopaedic saw at the base of femoral neck



Plate 6: Excised femoral head and neck

anesthetized using Diazepam @ 0.5 mg/kg BW and Ketamine 20mg/kg BW intramuscularly. Animal was placed on lateral

recumbency with affected leg upwards and the surgical site prepared aseptically using 70% Surgical spirit, painted with 5%

Povidone iodine solution and surgical site was draped with exposure of cranio-lateral aspect of thigh region (Plate-3). Cranio-lateral incision was made on affected hip joint. Subcutaneous tissue was undermined followed by transection of tendinous insertion between superficial gluteus and tensor fascia lata (Plate – 4). Lateral rotation of the stifle was done to expose the femoral head and neck (Ostectomy) was performed using orthopaedic saw (Plate-5), The femoral head and neck was removed from operative site (Plate-6). The surgical site was flushed with normal saline and joint capsule and transected tendinous insertion of superficial gluteus and tensor fascial lata were sutured using No-1 polyglactin 910 suture in continuous simple suture pattern, subcutaneous tissue was sutured using No-0 polyglactin 910 suture in simple continuous pattern and skin was closed with No-1 polyamide suture in horizontal suture pattern. Post-operative radiograph was taken immediately after the surgery to check the extent of osteotomy of Post-operatively Inj. Cephalexin @ 25 mg/kg BW I/M BID was administered for 7 days and Tab. Carprofen @ 3 mg/kg BW PO SID was given for 3 days in dogs, alternate day wound dressing done and sutures were removed on 12th post-operative day in dogs and cats the clinical evaluation in weigh bearing done in 14th post operative day in dogs and cats.

Results and Discussion

Present study was included 22 cases of dogs and cats with different hip affections like luxation of coxo-femoral joint due to trauma (n=3), delayed femoral head fracture (n=1), legg-Calve-Perthesdisease (n=2), Osteoarthritis (n=1) and hip dysplasia (n=15) similarly Berzon *et al.*, 1980, also performed. The incision site was found to be effective to expose the femoral head and neck without complications as also reported by Off and Matis 2010. In present study orthopedic saw and orthopedic chisel was used in present study was found to be effective to cut femoral head and neck without any complications as also mentioned by Off and Matis (2010). The

surgical technique was found to be effective in improving the gait of the dogs and cats with pain free walking and running which was due limiting the contact between the femoral head and the acetabulum which allowed the formation of dense fibrous tissue led to false joint formation or pseudoarthrosis.

References

- Berzon, J.L., Howard, P.E., Covell, S.J., Trotter, E.J. and Dueland, R. (1980). A Retrospective Study of the Efficacy of Femoral Head and Neck Excisions in 94 Dogs and Cats. *Vet. Surg.*, **9**(3): 88–92.
- Engstig, M., Vesterinen, S., Morelius, M., Junnila, J. and Hyytiainen, H.K., (2022). Effect of Femoral Head and Neck Osteotomy on Canines' Functional Pelvic Position and Locomotion. *Animals*, **12**(13): 1631.
- Mortellaro, C.M., (2003). Pathophysiology of osteoarthritis. *Vet. Res. Comm.*, **27**: 75-78.
- Off, W. and Matis, U. (2010). Excision arthroplasty of the hip joint in dogs and cats. *Vet. Comp. Orthop. Traumatol.*, **23**(5): 297-305.
- Off, W. and Matis, U. (2010). Excision arthroplasty of the hip joint in dogs and cats. *Vet. Comp. Orthop. Traumatol.*, **23** (05): 297-305.
- Piermattei, D.L., Flo, G.L. and DeCamp, C.E. (2006). *Handbook of Small Animal Orthopaedics and Fracture Repair*. Chapt -er, 16—The hip joint. 4thedn., Elsevier; St. Louis, MO, U.S.A. **Pp.** 461–511.
- Prasad, A.A., Shafiuzama, M., Ayyappan, S., Sureshkumar, R. and Jayaprakash, R. (2012). Incidence of coxo-femoral joint affections in dogs- A Clinical study of 575 patients. *Intas Polivet*, **13**(2): 281-283.
- Todhunter, R.J. and Lust, G. (2003). *Hip dysplasia: pathogenesis*. In: Slatter D, Eds. Textbook of Small Animal Surgery. 3rdedn., W.B. Saunders, Philadelphia, U.S.A. **Pp.** 2009-2019.