

**TRAUMATIC LESIONS OF PELVIS AND HIP JOINTS IN CATS**

**Mehmet SAĞLAM and Erinç YÜKSEL ÇALIK**

*Ankara University, Faculty of Veterinary Medicine, Department of Surgery, 06110 Ankara-Türkiye*

*msaglam@ankara.edu.tr; saglam45@gmail.com*

**Abstract:** The aim of this study was, to quote the options of conservative or operative treatments of pelvis and hip joint lesions encountered in cats as a result of trauma and to evaluate the results of studies in contributing to guide clinicians working within this field.

This study was performed by Ankara University, Faculty of Veterinary Medicine, Department of Surgery. Thirty one cats of different sexes, ages and breeds were referred to the clinics with pelvis region problems. Clinical and radiological examinations of pelvis and hip joints were assessed from all cats.

In L/L and V/D evaluation of the radiography, 9 of the cases were found to have unilateral, 2 of the cases had bilateral, 11 sacroiliac dislocation, 8 os ilium fracture, 3 os pubis fracture, 5 os ischii fracture, 3 os acetabulum fracture, 6 coxaefemoral dislocation and 4 caput femoris fracture. While conservative treatments were performed in 8 of the cases, operative fractures and dislocations were seen in 9 cases with interfragmental cerclage wires, iliosacral pins with 2 cases, iliosacral screw in one case and excision applications of arthroplasty were performed in eleven cases.

Clinical and radiological evaluations and surveys were conducted on 10th, 21st, 30th and 45th days of all cases. In this survey period, fully functional recovery was observed in 21 cases, one of the cases was informed to be recovered even though it was not monitored, while in 3 cases mild lameness was detected, 6 cases were not observed.

*Keywords: Cat, fracture, dislocation, pelvis, traumatic lesions.*

**Introduction**

Pelvic fractures in cats often occur as a result of traffic accidents and fall down from height (8, 9). Approximately 60% of cats with pelvic fractures have sustained a sacroiliac dislocation or fracture (6).

Careful clinical, neurological and radiological examinations are required with fractures of the pelvis (2).

Even though pelvic fractures can heal with cage rest and limited exercise, operative surgical treatment results in the pelvic functioning as the previous form which ends up with quick recovery, causing less pain. Conservative treatment of pelvic fractures, fractures of the ilium or sacroiliac fracture-dislocation for the implementation must be at minimum displacement (7).

A careful examination of the fracture type and location determined by radiographic and operative approach is essential for treatment techniques. The advantage of early reduction and fixation in the short-term hospitalization is the early functional recovery and minimized negative effects resulting from fracture (4).

Postoperative treatment of pelvic fractures consists of cage confinement for 2-4 weeks and restriction of activity indoors for another 3-6 weeks. An appropriate analgesic protocol is immediately necessary in postoperative period to improve overall well-being, food and water intake and to promote early weight gaining. (6).

**Material and Method**

The material for this study was composed of 31 cats in total with different breeds, ages and sexes, referred to Ankara University Faculty of Veterinary Medicine Department of Surgery with complaints of inability to use the rear limbs, fracture of the pelvis between 2011-2012 and fractures are diagnosed by clinical and radiological examinations.

According to the facts, lameness, pain, fever, abnormal movement, crepitus, fracture and dislocations with varying degrees of deformation were evaluated in clinical examinations.

Then providing sedation of animals, ventro-dorsal pelvis (V/D), and latero-lateral (L/L) position, classification was determined with the two-way radiographs taken of the fracture and dislocation.

In cases, xylazin HCl 2% (Rompun®, Bayer, 23.32 mg/ml) 0.1 ml/kg IM was used first for sedation, then ketamin HCl 10% (Ketasol®, Richterpharma, 100 mg/ml) 0.1 ml/kg IM was used for general anesthesia.

Routine of soft-tissue and orthopedic sets were used in the operations. The Kirschner wires, Shanz and Steinmann pins, cerclage wires of different diameters and cortical screws implanted in animals who underwent operative treatment, with diameters ranging from 0.4 to 1.2 mm and in order to create a toggle pin Kirschner wires and monofilament nylon rope (Danyl®, Fishing line; DAM Germany) of different thicknesses (0.4-1.2 mm) were used. Bandage and aluminum splint was applied to the relevant for conservative treatment and post-operative purposes.

In all cases, radiographic examinations were performed in ventro-dorsal (V/D) and latero-lateral (L/L) positions after the operations. Oral antibiotics were applied for 7 days postoperatively. Bandages were renewed on 10<sup>th</sup> postoperative day. Radiographic examinations were repeated on the postoperative 10<sup>th</sup>, 21<sup>st</sup> and 45<sup>th</sup>.

### Symptoms

According to the story, causes were falling from a height in 16 cases and traffic accidents in 7 cases, causes of 8 cases were not determined.

Radiography results of the cases which have taken V/D and L/L, 3 os pubis, 5 os ischii, 8 os ilium, 3 acetabulum, 4 caput femoris fractures and 6 coxofemoral dislocations, 11 sacroiliac dislocations were determined.

In total of 8 conservative treatment cases, 2 of the cases (case no. 6 and 20) could not be observed in the postoperative period, functional recovery was achieved in all cases.

In eight cases, interfragmental cerclage wires were applied on corpus ilium fracture. Five cases (cases no. 8, 13, 14, 15 and 31) of related extremities were seen being used easily. Mild lameness was seen due to the breaking of cerclage wire in 2 cases (cases no. 2 and 27). The other case (case no. 23) was not observed in the postoperative period.

In 2 cases (case no. 3 and 5), toggle pins were used in coxofemoral dislocations and related extremities were seen being used easily.

In 11 cases of femoral head and neck excision were applied and bandages were removed on 14<sup>th</sup> day. In 9 of the cases (cases no. 10, 11, 12, 15, 17, 18, 26, 29 and 30) related extremities were observed being used easily. The other cases (cases no. 19 and 28) were not observed in the postoperative period.

Clinical information of cases are represented in table 1.1 and x-rays of some cases are presented in figure 1-5.

### Discussion and Results

Aksoy and Özsoy (2003) reported that, 35.7% os pubis, 22.9% os ischii, 13.3% os ilium and 12.2% acetabulum fractures were observed (1). In our study 9.7% os pubis fracture, 16.1% os ischii fracture, 25.8% corpus ilium fracture, 35.5% sacroiliac dislocation, 9.7% acetabulum fracture, 19.3% coxofemoral dislocation, 12.9% caput femoris fractures were observed.

Conservative treatment was preferred for sacroiliac dislocations for minimum displacement as reported (3, 6). In our study, conservative treatments were used in 4 cases (cases no. 4, 6, 7, 22).

Avulsion fractures of tuber ischiadicum is often seen in cats (1). In our study avulsion fractures of tuber ischiadicum were seen in 3 cases.

Successful results were achieved by performing conservative treatment in os pubis fracture (7). In our study, conservative treatment of the os pubis fracture (cases no. 1, 13 and 18) was resulted uncomplicated.

Excision arthroplasty is a treatment option with a high success rate and low cost (6). It is reported that cats tolerated the excision arthroplasty very well (5). In our study, excision arthroplasty was performed due to the coxofemoral dislocation for 4 cases (case no. 11, 12, 19 and 29) and caput femoris fracture in 4 cases (case no. 15, 17, 26 and 30).

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**Table 1.** Cases race, age, gender, etiology, lesion localization, treatment and result table.

Case s no.	Age	Race	Gender	Etiology	Lesion localization	Treatment	Results
1	3 age	Tabby	♂	Unknown	Os pubis fracture (left)	Conservative treatment	Healed
2	6 month	Mix	♀	Fall from height	Corpus ossis ilii fracture (right)	Interfragmental cerclage wire	Slight lameness
3	7 month	Tabby	♀	Fall from height	Coxofemoral dislocation (left)	Toggle pin	Healed
4	1 age	Tabby	♂	Fall from height	Unilateral sacroiliac dislocation	Conservative treatment	Healed
5	7 month	Mix	♂	Fall from height	Os humerus fracture (left) Coxofemoral dislocation (left)	Osteosentez Toggle pin	Healed
6	1 age	Mix	♂	Unknown	Unilateral sacroiliac dislocation (right)	Conservative treatment	Was not observed
7	6 month	Tabby	♀	Fall from height	Unilateral sacroiliac dislocation	Conservative treatment	Healed
8	2 age	Mix	♀	Fall from height	Os ischii fracture Corpus ossis ilii fracture (right)	Interfragmental serclage wire	Healed
9	1 age	Tabby	♀	Unknown	Unilateral sacroiliac dislocation (left)	Iliosacral vida	Slight lameness
10	8 month	Mix	♀	Fall from height	Acetabulum fracture (left) Os femur oblique fracture (right)	Interfragmental serclage wire, Excision arthroplasty, pin and serclage wire	Healed
11	1 age	Mix	♂	Traffic accident	Unilateral sacroiliac dislocation (right) Coxofemoral dislocation (right)	Excision arthroplasty	Healed
12	8 month	Yellow cat	♂	Traffic accident	Unilateral sacroiliac dislocation (left) Coxofemoral dislocation (right)	Excision arthroplasty	Healed
13	1 age	Mix	♂	Traffic accident	Corpus ossis ilii fracture (left) Os pubis fracture (left)	Interfragmental serclage wire	Healed
14	5 month	Tabby	♀	Fall from height	Unilateral sacroiliac dislocation (right) Corpus ossis ilii fracture (right)	Interfragmental serclage wire	Healed
15	1 age	Tabby	♀	Fall from height	Corpus ossis ilii fracture (right) Caput femoris fracture (right)	Interfragmental cerclage wire Excision arthroplasty	Healed
16	1 age	Mix	♂	Traffic accident	Bilateral sacroiliac dislocation	Iliosacral pin	Was not observed
17	2 age	Tabby	♂	Fall from height	Os tibia fracture (left) Caput femoris fracture (right)	I.M. Excision arthroplasty	Healed
18	1,5 age	Tabby	♀	Fall from height	Acetabulum fracture (left) Os pubis fracture (right)	Excision arthroplasty	Healed
19	4 month	Mix	♂	Unknown	Coxofemoral dislocation (right)	Excision arthroplasty	Was not observed
20	2.5 age	Mix	♂	Unknown	Os ischii fracture (left) Os femur fracture (left)	Conservative treatment I.M. pin	Was not observed
21	7 month	Tabby	♂	Fall from height	Tuber ischiadicum fracture (left) Bilateral sacroiliac dislocation (left)	Iliosacral pin	Healed
22	6 month	Mix	♂	Fall from height	Unilateral sacroiliac dislocation (left)	Conservative treatment	Healed
23	8 month	Mix	♂	Traffic accident	Corpus ossis ilii fracture (right)	Revision osteosynthesis	Was not observed

24	8 month	Tabby	♂	Fall from height	Tuber ischiadicum fracture (left)	Conservative treatment	Healed
25	3 age	Tabby	♂	Fall from height	Tuber ischiadicum fracture (right)	Conservative treatment	Healed
26	1 age	Mix	♂	Traffic accident	Caput femoris fracture (right)	Excision arthroplasty	Healed
27	4 month	Yello w cat	♂	Traffic accident	Os tibia fracture (left)	I.M. pin	Slight lameness
28	6 month	Tabby	♀	Fall from height	Corpus ossis ilii fracture (left)	Intrefragmental serclage wire	
29	2 month	Mix	♂	Unknown	Unilateral sacroiliac dislocation (left)	Excision arthroplasty	Was not obsorved
30	1 age	Mix	♂	Unknown	Acetabulum fracture (left)	Excision arthroplasty	Healed
31	2 age	Mix	♂	Unknown	Coxofemoral dislocation (left)	Excision arthroplasty	Healed
					Caput femoris fracture (left)	Excision arthroplasty	Healed
					Corpus ossis ilii fracture (left)	Intrefragmental serclage wire	Healed



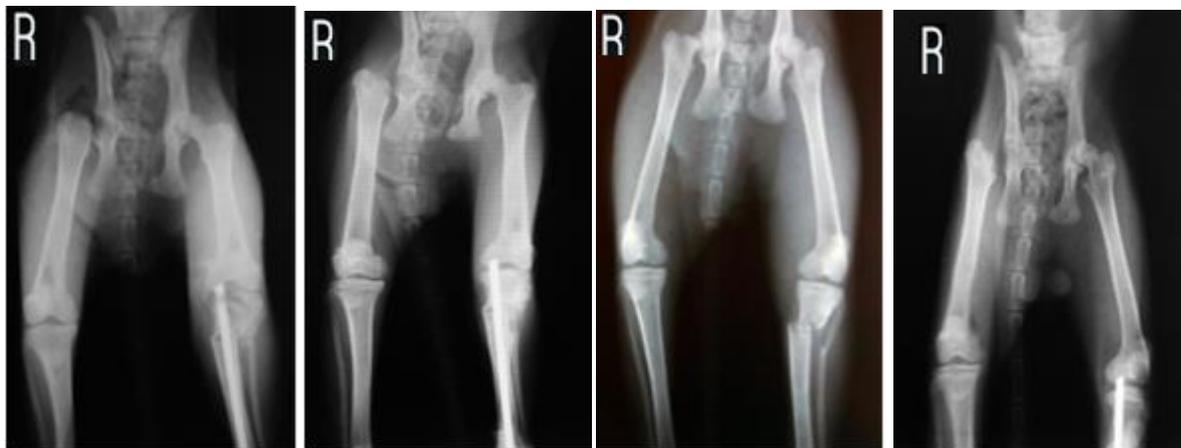
Figure 1. Preoperative-postoperative V/D radiography of case 21.



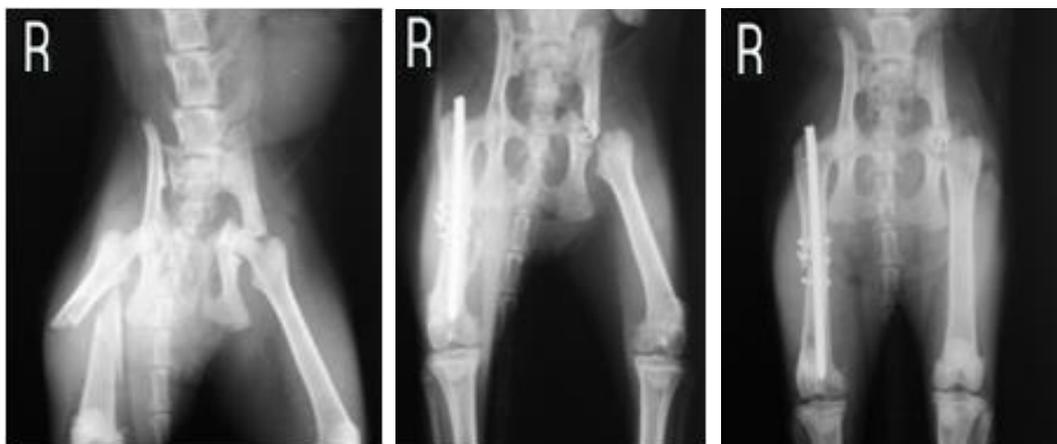
Figure 2. Preoperative-postoperative V/D radiography of case 8.



**Figure 3.** Preoperative-postoperative V/D radiography of case 3.



**Figure 4.** Preoperative-postoperative-10<sup>th</sup>-30<sup>th</sup> V/D radiography of case 26.



**Figure 5.** Preoperative-postoperative-10<sup>th</sup> V/D radiography of case 10.