

## Evaluation and surgical treatment of sacroiliac fracture-luxations in 28 cats and 25 dogs

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**Summary:** The aim of this study was to evaluate sacroiliac fracture-luxations clinically and radiographically, to treat with uni- or bilateral screw fixation and to describe surgical outcomes in cats and dogs. Cats (n=28) and dogs (n=25) which were brought to the clinic with complaints of pain, reluctance to move one or two hind limbs and/or dragging the hind limbs constituted the material of this study. Pelvic region radiographs were taken from all animals. Sacroiliac fracture-luxations and pelvic floor fractures were examined and surgery was decided. For surgical treatment, uni- or bilateral sacroiliac screw fixation was performed. Pelvic floor fractures were stabilized with pin and/or Kirschner wire fixation. According to postoperative clinical and radiographical findings, screw stabilization was found satisfactory. The animals compensated their implants very good and no complications were seen.

**Key words:** Cat, dog, sacroiliac fracture-luxation, screw fixation

### Sakroiliak kırık-luksasyonların 28 kedi ve 25 köpekte değerlendirilmesi ve cerrahi sağaltımı

**Özet:** Bu çalışmada, kedi ve köpeklerde sakroiliak kırık-luksasyonların klinik ve radyografik olarak değerlendirilerek, tek veya çift taraflı vida fiksasyon tekniği ile sağaltımı ve sonuçlarının ortaya konulması amaçlandı. Çalışma materyalini, ağrı, arka bacaklarının bir veya ikisini hareket ettirmede isteksizlik ve/veya arka bacaklarını sürükleme şikayetiyle kliniğe getirilen kedi (n=28) ve köpekler (n=25) oluşturdu. Tüm hayvanlardan pelvik bölge radyografisi alındı. Sakroiliak kırık-luksasyonlar ve pelvik çatı kırıkları değerlendirilerek operasyona karar verildi. Cerrahi sağaltım olarak tek veya çift taraflı vida fiksasyonu uygulandı. Diğer pelvik kemik kırıklarının pin ve/veya Kirshner telleri ile stabilizasyonu sağlandı. Postoperatif klinik ve radyografik bulgular değerlendirildiğinde, vida ile stabilizasyon uygulamasının tatmin edici olduğu sonucuna varıldı. Hayvanlar kullanılan implanta iyi uyum sağladı ve herhangi bir komplikasyon görülmedi.

**Anahtar sözcükler:** Kedi, köpek, sakroiliak kırık-luksasyon, vida fiksasyon

### Introduction

Pelvis consists of sacrum and os coxae formed by ilium, ischium and pubis. In kittens, there is also acetabulae which forms acetabular fossa. Ilium articulates medially with sacral wings and forms sacroiliac joint which is one of the weight-bearing structures of pelvis (19).

Injuries to sacroiliac joint in dogs and cats commonly occur in association with fractures of pelvis and pelvic limb. Pelvic fractures are common in cats and account for 22–23% of all fractures. Approximately 60% of cats with pelvic fractures have sustained a sacroiliac luxation-fracture (3). Also, in dogs, approximately 21% of all pelvic fractures are reportedly associated with sacroiliac luxation. Fall from height and motor vehicle trauma are the main causes (3, 10).

In sacroiliac fracture-luxations, ilium is usually displaced craniodorsally. Displacement is accompanied

by fractures of pubis and ischium, or by separation along the pelvic symphysis. It can occur unilaterally or bilaterally. Ventrodorsal pelvic radiography is used for differential diagnosis of sacroiliac fracture-luxations (19, 11).

Treatment decisions depend on the combination of different pelvic lesions and it is either conservative or surgical. In unilateral and bilateral sacroiliac luxations, conservative treatment may be considered if there is minimal instability, minimal pain, and pelvic canal narrowing. This treatment consists of providing analgesia, monitoring urination and defecation, and cage confinement for approximately 3 weeks (19, 11). However sacroiliac fracture-luxations are generally repaired surgically to prevent malunion, pelvic canal narrowing, extreme pain and neurological deficits (19).

The aim of this study was to evaluate sacroiliac fracture-luxations clinically and radiographically, to treat

with uni- or bilateral screw fixation and to describe surgical outcomes in cats and dogs.

### Materials and Methods

In the study, 28 cats and 25 dogs of different age, sex and breeds were assessed for sacroiliac fracture-luxations. Considering anamnesis and common clinical examinations (pain, reluctance to move one or two hind limbs, dragging the hind limbs), plain radiographs were taken in all cases. Sacrum was positioned with vertebral canal perpendicular to the cassette. Treatment technique was decided according to radiographic examinations. In cases with minimal displacement and instability, minimal pain, absence of neurological deficits and absence of pelvic canal obstruction, conservative treatment was performed. In cases with severe pain, marked instability of pelvic ring, pelvic canal obstruction and concurrent orthopaedic problems, surgery was decided.

Surgery was performed under general anesthesia. Xylazine HCl 2% (2 mg/kg, IM) and Ketamine HCl 10% (10 mg/kg, IM) were used for cats and dogs. Cefazolin (20 mg/kg, IV) was administered 1 hour before anesthesia. Preoperative analgesia included subcutaneous administration of 0.2 mg/kg meloxicam.

Both cats and dogs were placed on sternal recumbency. Sacroiliac joint surface was reached via dorsolateral approach (12). Dorsal lumbosacral region was prepared for aseptic surgery. For unilateral sacroiliac luxations, dorsal incisions of 1-1.5 cm for cats, 3-6 cm for dogs were made over the affected ilial wing, then m. gluteus and m. sacrospinalis were dissected. The fascia was incised longitudinally. Bone holding forceps was placed on the dorsal aspect of displaced ilial wing and joint surfaces of ilium and sacrum were exposed. Sacroiliac luxation was manually reduced by applying caudoventral pressure to ilium. When reduction was done, a pneumatic drill was used to drive a Kirschner wire (K-wire) for making hole (1.5 mm for cats, 1.8, 2.7 and 3.5 mm for dogs) through ilium and sacral body. A screw was selected and inserted through the gliding hole in the ilial wing until it appeared on the medial side of ilium. Drill angle was oriented at approximately 20° in canine sacrum, so that it could guide the screw from vertebral foramen downwards (2). For cats, drill angle to the articular surface of sacrum was 90° in dorsoventral plane (5, 16). Screw was placed in sacral hole to a depth of at least 70% of the width of sacral body, and it was tightened. If there was an ilium fracture, iliac surface was reached via craniolateral approach both in cats and dogs.

Radiographs were taken after surgery. Carprofen (2 mg/kg, bid, PO) and famotidine (1 mg/kg, sid, PO) was administered for 6 days, amoxicillin - clavulanic acid (20 mg/kg, bid, PO) was used as a broad spectrum antibiotic for 7 days in the postoperative period.

### Results

Mean age of the cats was 3.25±1.53 years and the dogs was 3.08±2.15 years. Mean body weight was 3.73±0.54 kg for cats, 18.76±11.11 kg for dogs. Sacroiliac luxations were unilateral in 8 cats and 15 dogs; bilateral in 20 cats and 10 dogs. Luxation was accompanied by one or more pelvic fractures in 26 cats and 19 dogs. The most common combinations were sacroiliac luxation with pubis fractures in 23 cats and both pubis and ischium fractures in 16 dogs (Table 1, 2). Cats with bilateral sacroiliac luxations, without pelvic floor fractures, could move easily and had no neurologic deficits. Dogs in the same situation had pain and they could not move their hind limbs. Both cats and dogs with ilium fractures could not move properly and they had severe pain.

Conservative treatment was performed in 3 cats (Figure 1) and 4 dogs. All other animals had undergone surgery; 10 cats (Figure 2) and 7 dogs had bilateral screw fixation (Figure 3, 4), 15 cats and 14 dogs had unilateral screw fixation (Table 1, 2). Unilateral screw fixation in 2 cats and bilateral screw fixation in 1 cat (case 12) was supported with sacroiliac pin. After surgery, 25 cats and 18 dogs compensated their implants very good and no complications were seen.



Figure 1. Bilateral sacroiliac luxation in a cat (case 10). Conservative treatment was performed.

Şekil 1. Bir kedide (olgu 10) bilateral sakroiliak luksasyon. Konservatif sağaltım uygulandı.

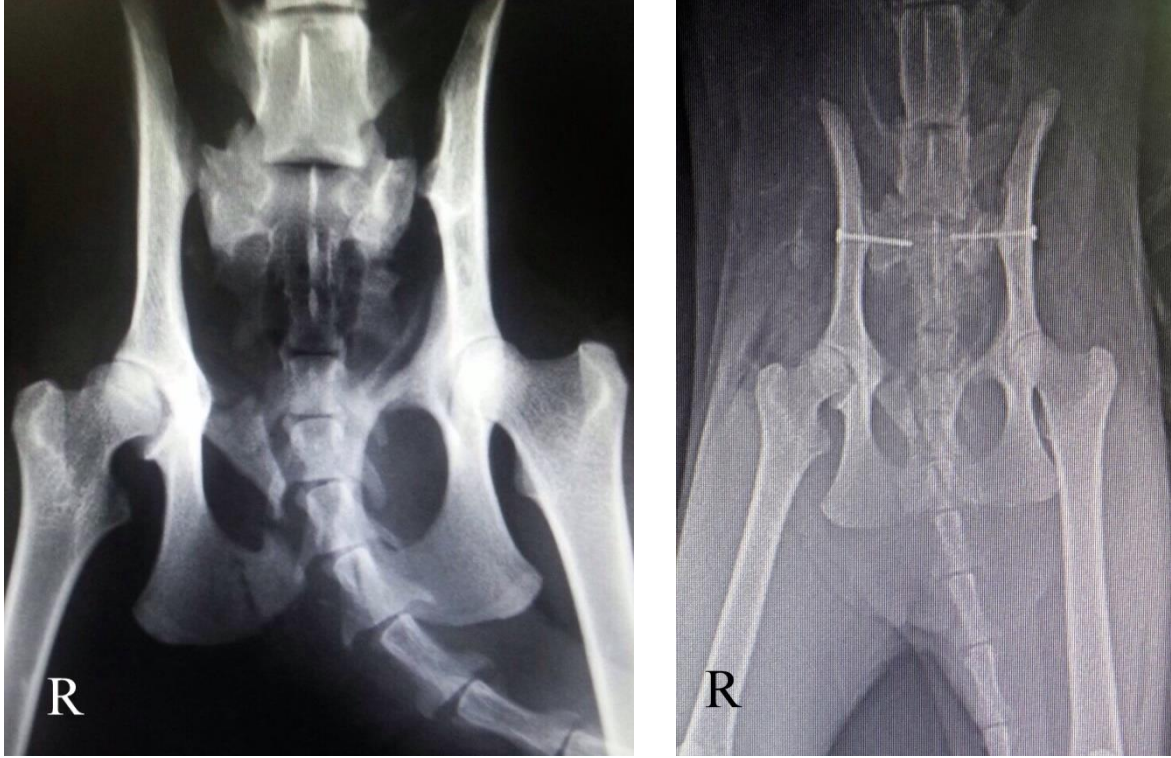


Figure 2. (a) Bilateral sacroiliac luxation with right side ischii and pubis fracture in a cat (case 1). (b) Bilateral screw (1.5 mm, length 16 mm for right, 18 mm for left side) fixation technique.

Şekil 2. (a) Bir kedide (olgu 1) sağ ischii ve pubis kırığı ile birlikte bilateral sakroiliak luksasyon. (b) Çift taraflı vida (sağ taraf için 1.5 mm, uzunluk 16 mm, sol taraf için 18 mm) fiksasyon tekniği.

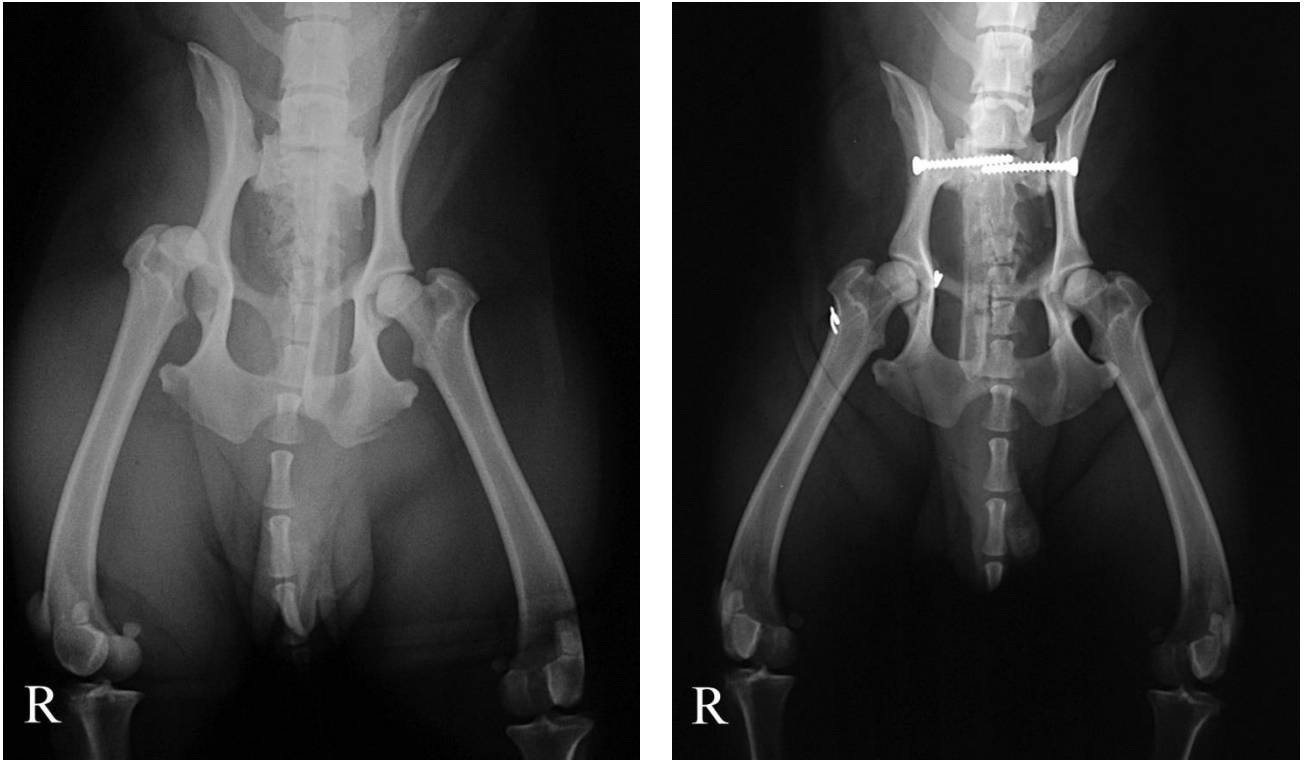


Figure 3. (a) Bilateral sacroiliac luxation and right coxofemoral luxation in a dog (case 15). (b) Bilateral screw (3.5 mm, length 30 mm) fixation technique for bilateral sacroiliac luxation, toggle pin technique for coxofemoral luxation.

Şekil 3. (a) Bir köpekte (olgu 15) bilateral sakroiliak luksasyon ve sağ koksofemoral luksasyon. (b) Bilateral sakroiliak luksasyon için çift taraflı vida (3.5 mm, uzunluk 30 mm) fiksasyon tekniği, koksofemoral luksasyon için toggle pin tekniği.

Table 1. Sacroiliac luxation, fracture configuration and surgical techniques in cats.  
 Tablo 1. Kedilerde sakroiliak luksasyon, kırık konfigürasyonu ve cerrahi teknikler.

Cat	Signalment	Sacroiliac luxation	Fracture configuration			Other injuries	Surgical techniques	Complications	Results
			Ilium	Ischium	Pubis				
1	Mix, 2 year-old, FM, 3,5 kg	Bilateral Fall from height	No	Yes (R)	Yes (R)	Pleural effusion	Bilateral screw fixation	None	Good
2	Mix, 1 year old, FM, 3 kg	Unilateral (L) Unknown trauma	No	Yes (L)	Yes (L)	None	Unilateral screw fixation	None	Very good
3	Siamese, 2 year-old, M, 4 kg	Bilateral Fall from height	No	Yes (R)	Yes (R)	Hernia Diaphragmatica	Bilateral screw fixation	None	Very good
4	Mix, 5 year-old, MN, 4 kg	Bilateral Car accident	Short oblique (R)	Yes (L)	Yes (L)	None	Unilateral screw fixation	None	Very good
5	Mix, 3 year-old, FN, 4 kg	Bilateral Unknown trauma	No	No	Yes (R)	Caudal abdominal herniation	Bilateral screw fixation	None	Very good
6	Mix, 6 year-old, M, 3 kg	Unilateral (L) Car accident	Transverse fracture (L)	No	Yes (L)	Tail fractured	Unilateral screw fixation, One pin fixation to the ilium	None	Very good
7	Angora cat, 3 year-old, M, 4 kg	Bilateral Fall from height	No	Yes (R)	Yes (R)	Acetabular fracture (R)	Bilateral screw fixation	None	Very good
8	Burmese, 2 year-old, M, 4,5 kg	Bilateral	No	Yes (R)	No	Femur fracture (R)	Bilateral screw fixation Intramedullary pin application to the femur	None	Very good
9	Van cat, 3 year-old, FM, 3 kg	Unilateral (R) Unknown trauma	Contralateral ilial body fracture (L)	No	Yes (R)	None	Unilateral screw fixation	None	Very good
10	Van cat, 2 year-old, M, 3,5 kg	Bilateral Fall from height	Yes (L)	Yes (L)	Yes (L)	None	Conservative treatment	None	Very good
11	Mix, 4 year-old, M, 4 kg	Bilateral Fall from height	No	Yes (L)	Yes (L)	Bilateral femur fracture	Bilateral screw fixation Bilateral intramedullar pin fixation to the femurs	None	Very good
12	Mix, 3 year-old, MN, 4,5 kg	Bilateral Fall from height	Fragmented transverse fracture (L)	Yes (L)	Yes (L)	Femur fracture (L)	Bilateral screw fixation Pin application to the ilium Intramedullar pin fixation to the femur	None	Satisfactory
13	Scottish fold, 6 year-old, FN, 4,5 kg	Bilateral Fall from height	No	Yes (L)	Yes (L)	Pneumothorax	Bilateral screw fixation	None	Very good
14	Angora cat, 4 year-old, MN, 4 kg	Bilateral Fall from height	No	Yes (L)	Yes (L)	Acetabular fracture (L)	Unilateral screw fixation	None	Very good
15	Mix, 3 year-old, MN, 4,5 kg	Bilateral Fall from height	No	Yes (R,L)	Yes (R,L)	None	Bilateral screw fixation	None	Very good

16	Mix, 4 year-old, M, 3,5 kg	Unilateral (R) Car accident	Transverse fracture (R)	No	No	Right coxofemoral luxation	Unilateral screw fixation Toggle pin fixation for coxofemoral luxation Pin and K-wire application to the ilium	None	Very good
17	Van cat, 3 year-old, M, 3 kg	Unilateral (L) Fall from height	No	Yes (L)	Yes (L)	Urinary bladder rupture Pneumothorax	Unilateral screw fixation	None	Good
18	Siamese, 4 year-old, FN, 3,5 kg	Bilateral Fall from height	No	No	No	Left femur fracture	Unilateral screw fixation (R) Intramedullar pin fixation to femur.	None	Good
19	Persian, 1 year-old, M, 3,5 kg	Bilateral Fall from height	Oblique fracture (R)	Yes (R)	Yes (R)	None	Conservative treatment	None	Very good
20	Mix, 5 year-old, FN, 3 kg	Unilateral (R) Fall from height	No	No	Yes (R)	None	Unilateral screw fixation	None	Very good
21	Angora cat, 3 year-old, M, 3,5 kg	Bilateral Fall from height	No	Yes (R,L)	Yes (R,L)	None	Unilateral screw fixation	None	Very good
22	Angora cat, 2 year-old, FM, 4 kg	Bilateral Fall from height	No	Yes (R)	Yes (R)	Right coxofemoral luxation Pneumothorax	Bilateral screw fixation Toggle pin fixation for coxofemoral luxation	None	Very good
23	Mix, 7 year-old, MN, 4 kg	Bilateral Fall from height	No	Yes (L)	Yes (L)	Left coxofemoral luxation Pneumothorax	Unilateral screw fixation Toggle pin fixation for coxofemoral luxation	None	Very good
24	Persian, 1 year-old, M, 3,5 kg	Unilateral (R) Fall from height	No	Yes (R)	No	None	Unilateral screw fixation	None	Very good
25	Mix, 4 year-old, FN, 4,5 kg	Bilateral Fall from height	No	No	No	Left coxofemoral luxation	Conservative treatment	None	Very good
26	Mix, 3 year-old, MN, 4 kg	Bilateral Fall from height	No	Yes (L)	Yes (L)	Left mid diaphyser femur fracture, coxofemoral luxation	Unilateral screw fixation Toggle pin for coxofemoral luxation, Plate for femur fracture	None	Very good
27	Scottish fold, 3 year-old, FM, 4 kg	Bilateral Fall from height	No	Yes (L)	Yes (L)	Right coxofemoral luxation Pneumothorax	Unilateral screw fixation Toggle pin fixation for the coxofemoral luxation	None	Very good
28	Mix, 2 year-old, MN, 3 kg	Unilateral (R) Fall from height	Oblique fracture (R)	Yes (R)	Yes (R)	Pneumothorax	Unilateral screw fixation Conservative treatment for the ilium	None	Very good

M: male, FM: female, MN: male neutered; FN: female neutered

Table 2. Sacroiliac luxation, fracture configuration and surgical techniques in dogs.  
 Tablo 2. Köpeklerde sakroiliak luksasyon, kırık konfigürasyonu ve cerrahi teknikler.

Dog	Signalment	Fracture configuration			Other injuries	Surgical techniques	Complications	Results	
		Sacroiliac luxation	Ilium	Ischium					Pubis
1	Golden retriever, 2 year-old, FM, 30 kg	Bilateral Car accident	Yes (R)	Yes (R)	Yes (R)	None	Bilateral screw fixation	None	Good
2	Pointer, 1 year old, FM, 20 kg	Unilateral (R) Unknown trauma	No	No	No	None	Unilateral screw fixation	None	Very good
3	Mix, 2 year-old, M, 4 kg	Unilateral (L) Car accident	No	No	No	None	Conservative treatment	None	Very good
4	Mix, 5 year-old, FN, 12 kg	Bilateral Car accident	Yes (R)	No	Yes (R)	None	Bilateral screw fixation	None	Very good
5	Rottweiler, 4 months-old, M, 10 kg	Unilateral (R) Fall from height	No	Yes (R)	Yes (R)	Inguinal herni	Unilateral screw fixation	None	Very good
6	Mix, 6 year-old, M, 16 kg	Unilateral (L) Car accident	Yes (L)	Yes (L)	Yes (L)	Acetabular fracture (R) Pneumothorax	Unilateral screw fixation	None	Very good
7	Labrador retriever, 8 months-old, FM, 22 kg	Bilateral Car accident	No	No	No	None	Bilateral screw fixation	None	Very good
8	Mix, 2 year-old, MN, 14 kg	Unilateral (R) Car accident	Oblique fracture (R)	Yes (R)	Yes (R)	Femur fracture (R)	Unilateral screw fixation Intramedullary pin application to the femur	None	Good
9	Golden retriever, 1 year-old, M, 21 kg	Bilateral Unknown trauma	Transverse fracture (L)	Yes (R)	Yes (R)	Pneumothorax	Unilateral screw fixation Pin application to the ilium	None	Good
10	Peckingsese, 2 year-old, M, 5 kg	Unilateral (L) Fall from height	Contralateral ilial body fracture (R)	Yes (L)	No	None	Conservative treatment	None	Good
11	German shepherd, 4 year-old, M, 26 kg	Unilateral (L) Car accident	Transverse fracture (L)	Yes (L)	Yes (L)	Femur fracture (L)	Unilateral screw fixation Intramedullary pin fixation to the femur	None	Satisfactory
12	German shepherd, 6 months-old, FM, 11 kg	Unilateral (L) Car accident	Fragmented transverse fracture (L)	No	No	None	Unilateral screw fixation Pin application to the ilium	None	Very good
13	Golden retriever, 6 year-old, M, 35 kg	Bilateral Car accident	Transverse fracture (R)	Yes (L)	Yes (L)	Pneumothorax	Bilateral screw fixation	None	Very good
14	Mix, 8 year-old, MN, 27 kg	Unilateral (L) Car accident	No	Yes (R,L)	Yes (R,L)	None	Unilateral screw fixation	None	Very good
15	Mix, 3 year-old, MN, 4,5 kg	Bilateral Fall from height	No	No	No	Coxofemoral luxation (R)	Bilateral screw fixation Toggle pin fixation to the femur	None	Very good

16	Mix, 1 year-old, M, 13 kg	Unilateral (R) Car accident	No	Yes (R)	Yes (R)	Acetabular fracture	Unilateral screw fixation	None	Very good
17	Mix, 3 year-old, M, 30 kg	Unilateral (L) Car accident	No	Yes (L)	Yes (L)	Urinary bladder rupture Pneumothorax	Unilateral screw fixation	None	Good
18	Irish setter, 4 year-old, FN, 32 kg	Bilateral Unknown trauma	Oblique fracture (R)	Yes (L)	Yes (R,L)	None	Bilateral screw fixation Conservative treatment for the ilium	None	Good
19	Mix, 1 year-old, MN, 16 kg	Bilateral Unknown trauma	No	No	No	None	Conservative treatment	None	Very good
20	Mix, 5 year-old, FN, 32 kg	Unilateral (R) Car accident	No	Yes (R)	Yes (R)	None	Unilateral screw fixation	None	Very good
21	Kangal dog, 3 year-old, M, 46 kg	Unilateral (L) Car accident	No	Yes (L)	Yes (L)	None	Unilateral screw fixation	None	Very good
22	Mix, 1.5 year-old, FM, 18 kg	Bilateral Unknown trauma	No	Yes (L,R)	Yes (R)	Right coxofemoral luxation	Bilateral screw fixation Excision arthroplasty for coxofemoral luxation	None	Very good
23	Terrier, 7 year-old, FN, 7 kg	Unilateral (L) Dog attack	No	No	Yes (L)	Pneumothorax	Unilateral screw fixation	None	Very good
24	Terrier, 1 year-old, M, 11 kg	Unilateral (R) Fall from height	Transvers fracture (R)	Yes (R)	No	Left femur, fragmented fracture	Unilateral screw fixation Intermedullar pin fixation to femur	None	Very good
25	Mix, 4 year-old, FN, 6.5 kg	Bilateral Unknown trauma	No	No	No	None	Conservative treatment	None	Very good

M: male, FM: female, MN: male neutered; FN: female neutered





Figure 4. Bilateral screw (for right 1.5 mm, length 14 mm, for left 2.7 mm, length 14 mm) fixation technique in a dog (case 7).  
Şekil 4. Bir köpekte (olgu 7) çift taraflı vida (sağ taraf için 1.5 mm, uzunluk 14 mm, sol taraf için 2.7 mm, uzunluk 14 mm) fiksasyon tekniği.

### Discussion

Sacroiliac fracture-luxation is a common injury that results in an unstable pelvis and collapse of the pelvic canal in cats and dogs. Although conservative treatment is a management option, displacement of the pelvic fragment, pelvic canal stenosis, constipation or obstipation were reported as severe complications. Cats seem to recover well after conservative treatment, but ankylosis of sacroiliac joints and degenerative changes in the lumbosacral joint may be seen. On the other hand, surgical management, approaches and methods of stabilization techniques allow a quick return to weight bearing and prevent obstipation from pelvic canal collapse, so, many authors prefer surgery especially in sacroiliac fractures with dislocations (1, 11, 14). In the study, surgical stabilization was performed in all cats and dogs which are nonambulatory, have pain, displacement of pelvis and other orthopaedic problems.

Sacroiliac luxation combinations generally occur as unilateral sacroiliac luxation with pelvic floor fracture, bilateral sacroiliac luxation with/without pelvic floor fracture, and unilateral sacroiliac luxation with contralateral ilium fracture, with/without pelvic floor fracture (19). In the study, the most common sacroiliac luxation combination was bilateral sacroiliac luxation

with pelvic floor fracture (pubis) in cats, bilateral sacroiliac luxation with pubis and ischium fracture in dogs. If bilateral sacroiliac luxation-fracture stabilization is to be performed, the side where anatomic reduction is more important should be firstly operated (19). In the study, bilateral sacroiliac luxation-fracture surgery was performed in the same sessions. There are numerous surgical fixation techniques of sacroiliac fracture-luxation. Pin fixation may be used as a sole method or in combination with screw fixation. They may be driven through the wing of the ilium into the sacral body, or passed through the ilial wings and L7 spinal process (transiliac pins) (19, 20). Stabilization with a single trans-sacral screw is suggested in small dogs and cats with bilateral sacroiliac fracture-luxation (9). A dorsolateral approach with open reduction and sacroiliac lag screw insertion is commonly used in dogs and cats (5, 6, 11). To some authors, tension band technique for stabilization of sacroiliac separations is safer than screw fixation technique in cats (13). Minimally invasive closed reduction and percutaneous lag screw fixation of the sacroiliac joint using intraoperative fluoroscopy has successfully been performed in dogs. Although fluoroscopy-assisted percutaneous placement of screw for fixation is simple and possible in cats and dogs, fluoroscopy is a potential risk for both the animal and the operator because of excessive exposure to ionizing radiation (7, 18). In this study, uni- or bilateral screw fixation was performed in both cats and dogs according to the type of pelvis fracture and sacroiliac luxation. When extra stability was required, screw fixation was supported with a transiliac Steinmann pin. Also, dorsolateral approach was preferred for implant placement.

Since the desired area of sacral body of the cats could not be directly visualized during the operation, feline pelvis were examined in order to identify the location for optimal sacroiliac screw placement in sacroiliac fracture-luxation repair. To the authors, articular surface of sacral wing in cats is positioned more cranially and ventrally to sacral body than in dogs. Despite choosing the correct spot for screw hole placement on the articular surface of sacral wing, there is still considerable risk of missing sacral body. It is recommended to change the position of the cat from sternal to lateral recumbency and adjust the drill bit perpendicular to the articular surface so that the drill bit comes out cranially in the lumbosacral space or ventrally to the sacral body (5). In this study, cats' positions were not needed to be changed from the sternal position, the angle of the drill bit was adjusted easily in this position and it was applied without any complications.

There is a notch in the cranial border of sacral wing. It is visible or palpable in 98.5% of dogs. Operators use this notch for the ideal screw hole position,



because it is just caudal to this notch (6). However, this notch can be seen only in 34% of cats' sacra. Also its location is quite variable. Therefore, the notch has not been proved to be a distinct landmark in feline sacral wing for the screw hole position. So, it is recommended to drill a pilot hole with a small diameter Kirschner wire first. This hole can be palpated with a hook whether it is surrounded by bone in all directions. Then screw hole can be drilled (5). In this study, this notch was used as a guide and the screw hole was positioned caudal to this notch in canine sacrum. The notch was not be used properly in feline sacrum, so Kirschner wire was used in sacroiliac fracture-luxation operations to drill pilot hole in cats.

Preoperative radiographs should be assessed carefully for the estimation of angle in each individual case because of the anatomic variation among canine and feline sacra (4, 15, 16). In the study, radiographs were evaluated in detail especially in canine radiographs to approach the region. To the authors, placement of the screws in lag fashion to a depth of at least 60% of the width of sacral body minimized the risk of implant loosening (17). This depth was administered approximately 70% in this study.

The lumbosacral plexus which is composed of the sixth and seventh lumbar, and the first and second sacral nerve roots, separates the sciatic nerve near the pelvic canal caudodorsal to hip joint. Therefore, lumbosacral plexus and sciatic nerve are at risk of being damaged during pelvic trauma and surgery (19). Nerve deficits are associated with ilial body fractures in approximately 70%, and with sacroiliac luxations in around 30% of cats (3). This risk occurs during craniomedial displacement of ilial fractures and cranial displacement of sacroiliac luxations especially for lumbosacral plexus (8). In the study, animals with bilateral sacroiliac luxations with ilial fractures had severe pain, did not move their legs on the side of ilial fracture and dragged hind limbs. After the operation, they could use their legs and walk properly.

Sacroiliac fracture-luxations in cats and dogs showed different clinical symptoms in this study. Cats had more toleration in this orthopaedic problem. Uni- and bilateral screw fixation performed easily to sacroiliac fracture-luxations. Outcomes of the technique were satisfactory and there were no severe complications after surgery.

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