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Alaa A Ibrahim
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Rafid M Naeem
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Luay A Naeem
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Mohammed R Abduljaleel
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Nameer A Kareem
Department of Veterinary Hygiene, College of Veterinary Medicine-University of Basrah, Basrah-Iraq

Noor H Sanad
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Ammar M Hashim
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Ashraff W Abdulrazaq
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Corresponding Author:
Mohammed R Abduljaleel
Department of Surgery and Obstetrics, College of Veterinary Medicine, University of Basrah, Basrah, Iraq

Lion's forelimbs declawing (Onychectomy)

Alaa A Ibrahim, Rafid M Naeem, Luay A Naeem, Mohammed R Abduljaleel, Nameer A Kareem, Noor H Sanad, Ammar M Hashim and Ashraff W Abdulrazaq

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Abstract
Objective: Onychectomy is the elective surgical amputation of the claws and the attached P3 bone. The procedure was performed to eliminate destructive scratching behaviors in lions.
The Aim: it was to elucidate the declawing (onychectomy) of the thoracic limbs of the lion and to report the kind of complications in lions undergoing these onychectomies by the incisional method.
Materials and Methods: Three healthy home lions that were between nine and ten months old were used in the study. To stay far away from the lion, we administered the first dose using a pole syringe. It took 13 minutes to reach the xylazine and ketamine dosages needed for anesthesia, which were 1.0 and 3.5 mg/kg body weight, respectively. The surgical plane of anesthesia was maintained for 11 min then the dose was repeated every 11 to 15 minute until surgery was done for all bilateral forelimb digits. The paw, digits, and nails were aseptically scrubbed for surgery. The position the animal was in lateral recumbency and a tourniquet below the elbow was applied to minimize blood loss. P3 disarticulation is accomplished with a no. 20 blade. The extensor tendon and dorsal elastic ligament were cut dorsally after the nail bed's skin. After that, the joint capsule is cut open to reveal and transsect the collateral ligaments. After the claw was flexed, the pad was preserved by carefully dissecting the flexor process and transsecting the deep digital flexor tendon. The bleeding was stopped by gauze direct pressure and suturing with absorbable suture (polyglactin 910 size 1USP).
Results: In stage 3 of anesthesia, during plane one the eyeball undergo nystagmus and then rotated ventrally in plan 2 and 3. During 2-3 days after surgery, the animals recumbent most of the time and licked the site of surgery. One stitch lost its tensile strength at the 3rd day post-surgery but the wound healed by second intention without protruding the second phalanx. Licking the toes habit was started again 7 days after surgery. The licking continued for 5 to 6 days. At the 1st day after surgery, there were noticeable lameness, which was exposed by the animals, which were tried to step on them metacarpal pads without depending on digital pads, and the signs of lameness were gradually disappeared at the 4th to 5th day post-surgery. The sites of the surgery healed without complication, and the animals return to normal behavior without any bad habits (like biting).
Conclusion: This type of surgery is simple and easy to done with minimal bleeding. Onychectomy did not effect on lions behaviors. It was done under sterile conditions by experienced veterinary surgeons and the results gave a minimal side effect or complication. Complications after bilateral declawing of lions were lameness and itching (licking the operation area), which led to knot failure, but the wound healed by second intention without protruding the 2nd phalanx. The claws did not re-growth after these surgeries, and therefore the incisional blade method is suitable for onychectomy in lions.

Keywords: Claw, lion, onychectomy, phalanx

Introduction
The general name for cats is Felidae; a felid or feline is a member of this family. Felids are the only carnivores in the Carnivora order of mammals. The family contains all wild cats, including the big cats, but the most well-known felid is the domestic cat, which was initially connected to humans about 10,000 years ago. One of the four large cats in the genus Panthera and a member of the Felidae family is the lion (Panthera leo). It is the second largest cat in the world, behind the tiger, with some males weighing over 250 kg (550 lb). Even though they may scavenge if necessary, lions are apex and keystone predators.

Although they do not usually hunt people specifically, some lions have been known to turn into man-eaters and pursue human victims. Over the past 20 years, the lion's population in its African habitat has declined by 30 to 50%, potentially irreversibly, making it a vulnerable species (Nzalak *et al*. 2010) [11].

The requirements and natural behaviors of animals living with us can occasionally conflict with the different standards for a clean, well-maintained home and a civilized social life that have been developed over time. How animal owners have handled these problems reveals how their perspectives on the place of animals in their homes have evolved and how much or little people may truly understand about the psychological requirements and biological behaviors of the animals they look after. Declawing the animals is a typical way for some owners to prevent damaging scratching. (Grier and Peterson, 2005) [7].

Often called "declawing," onychectomy is mainly an elective treatment in which the third phalanx is removed using a laser or surgical blade similar to a guillotine. Unwanted scratching behavior that results in property damage or personal injury is the most frequent cause for onychectomy procedures. The surgery is sometimes used to treat traumatic injuries or immune-mediated diseases on one or more digits. (Kogan and others, 2016) [8].

While digit I only had two phalanges, digits II, III, IV, and V each had three. Digit I's proximal phalanx and Digits II, III, IV, and V's proximal and middle phalanges each had a proximal base, a body, and a distal head. The palmar flexor tubercle, the distal crest of the claw, the process of the claw, and the dorsal prominence, the extensor process, were all present in the distal phalanx of digits I-V. The dorsal and lateral proximal surfaces of the cutaneous claw were the superficial and distal projections of the distal phalanx's crest. The extensor process served as the base of the distal phalanx's crest. The distal interphalangeal joint was overextended as a result of two elastic ligaments connecting the crest of the distal phalanx to the middle phalanx. The distal phalanx's bony extension into the cutaneous claw was known as the claw's process (Nzalak *et al*., 2010; Ellison, 2003) [11, 5].

The ungual crest of P3 is where the common digital extensor tendon attaches. Its muscle allows for digital extension and preserves digitigrade stance. Digital flexion is accomplished by the deep and superficial digital flexor tendons contracting their respective muscles. Specifically, the superficial digital flexor tendon permits flexion at the level of the proximal interphalangeal joint, whereas the deep digital flexor tendon is in charge of flexion of the distal interphalangeal joint. The superficial digital flexor tendon maintains paw flexion after onychectomy (figure 1). (Breitreiter, 2019) [2].

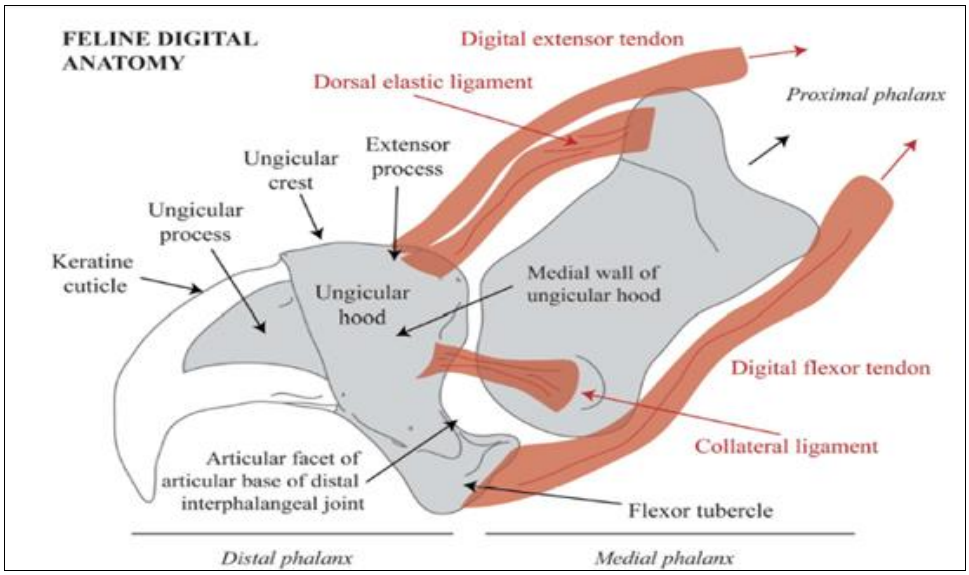

Fig 1: Lateral view of schematized distal and middle feline phalanx in anatomical connection (Cueto, *et al*. 2016).

A contentious technique, onychectomy is illegal as an elective procedure in many European nations, Australia, New Zealand, and Brazil. The high rate of short-term problems and the potential for long-term issues and behavioral alterations are the main ethical concerns surrounding elective onychectomies. Up to 50% of onychectomy cases result in short-term consequences, including as pain, lameness, bleeding, decreased appetite, personality change, infection, lethargy, and cystitis. Though they are rarely documented, long-term issues after onychectomy can include increased biting, flexor tendon contraction, persistent pain, painful paws, claw regrowth, and lameness. (Clark, *et al*. 2014) [3].

The aim of this study was to elucidate the declawing (onychectomy) of the thoracic limbs of the lion and to report the kind of complications in lions undergoing these onychectomies by the incisional method. Experienced veterinary practitioners performed these surgeries. To our knowledge, there are little veterinary literatures on the onychectomy of the thoracic limbs of the lion, especially in Iraq.

Materials and Methods

The study was done on three household healthy lions, nearly 9-10 month age. The indications of these surgeries were elective which were performed at the request of the owners.

These large cats' anesthesia procedure started in a different way from that of domestic cats. To stay far away from the lion, we administered the first dose using a pole syringe. A pole syringe is a long pole with an anesthetic drug-filled syringe attached to the end.

It took 13 minutes to reach the xylazine and ketamine dosages needed for anesthesia (chemical immobilization), which were 1.0 and 3.5 mg/kg body weight, respectively. The surgical plane of anesthesia was maintained for 11 min then the dose was repeated every 11 to 15 minute until surgery was done for all bilateral forelimb digits (Abduljaleel *et al*., 2025) [1].

The paw, digits, and nails were aseptically scrubbed for surgery. The position the animal was in lateral recumbency and a tourniquet below the elbow was applied to minimize blood loss.

BIade technique: P3 disarticulation is accomplished with a no. 20 blade. The extensor tendon and dorsal elastic ligament were incised after the nail bed's skin (figure 2a). After that, the joint capsule is cut open to reveal and transsect the collateral ligaments (figure 2b, c, d, and e). The claw was then flexed, and the deep digital flexor tendon was carefully transected and the flexor process was carefully dissected away to preserve the pad (figure 2 f and g). The bleeding was stopped by gauze direct pressure and suturing with absorbable suture (polyglactin910 size 1USP). A spry containing oxytetracyclene and methylene blue was used for decontamination (figure 2 h).

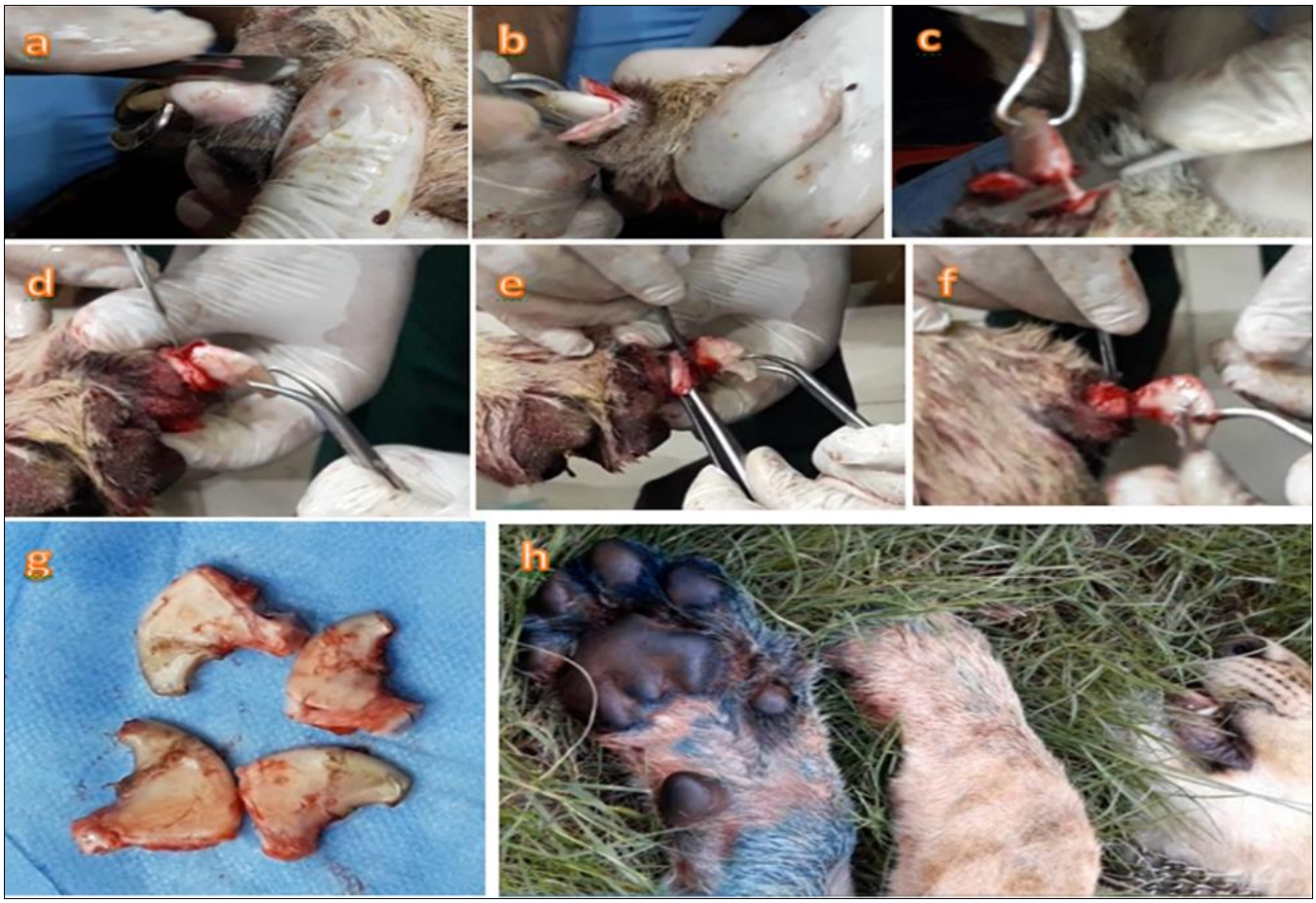

Fig 2: a. The skin of the nail bed was incised dorsally. b. soft tissues were isolated from the 3rd phalanx by periosteal elevator. c., d. and e. the extensor tendon and dorsal elastic ligament were incised so the joint capsule will be open. f. The claw was flexed, and the deep digital flexor tendon was transected to dissect the flexor process. g. the isolated 3rd phalanx bones after onychectomy. h. after suturing the antibiotic spray (methylene blue + oxytetracycline) was applied at the site of surgery

Results

In stage 3 of anesthesia, during plane one the eyeball undergo nystagmus and then rotated ventrally in plan 2 and 3 (figure 3a and b).

During 2-3 days after surgery, the animals recumbent most of the time and sometimes licked the site of surgery. One stitch lost its tensile strength at the 3rd day post-surgery but the wound healed by second intention without protruding the second phalanx (figure 4 a and b). Licking the toes habit was started again 7 days after surgery. The licking continued for 5 to 6 days.

At the 1st day after surgery, there were noticeable lameness, which was exposed by the animals, which were tried to step on them metacarpal pads without depending on digital pads, and the signs of lameness were gradually disappeared at the 4th to 5th day post-surgery. The sites of the surgery healed without complication, and the animals return to normal behavior without any bad habits (like biting) (figure 5 a and b).

Discussion

Onychectomy (declawing) is removal of the third digital phalanx (P3). Elective onychectomy commonly is performed between 3 and 12 months of age to prevent animals from scratching furniture or people. Usually only the forelimb claws are removed (MacPhail, 2013) [9].

The aim of the present study was to illustrate or explain the declawing (onychectomy) of the thoracic limbs of the lion and to expose the kind of complications in lions undergoing these surgeries.

The disadvantage of using ketamine and xylazine together is that a significant amount of ketamine is needed for an effective dosage, which may require repeated drug administration. (Fahlman, *et al*. 2005) [6].

We used the procedure incisional blade method to disarticulate the third phalanx because this method does not leave remnants of the third phalanx *in situ. Therefore, the incisional or blade method* is associated with an decrease frequency of claw regrowth (Clark, *et al*. 2014) [3].

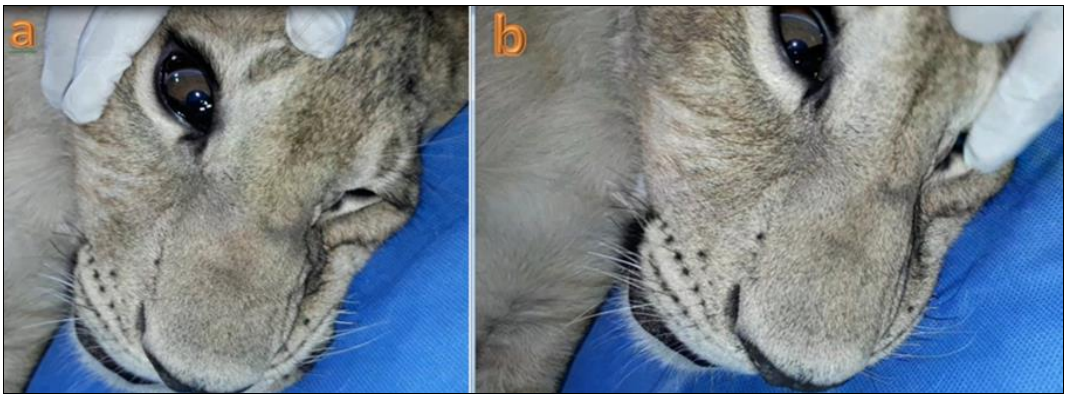

Fig 3: a and b A picture showed the eyeball of a lion under general anesthesia: in stage 3, plane one the eyeball undergo nystagmus and then rotated ventrally in plan 2 and 3.

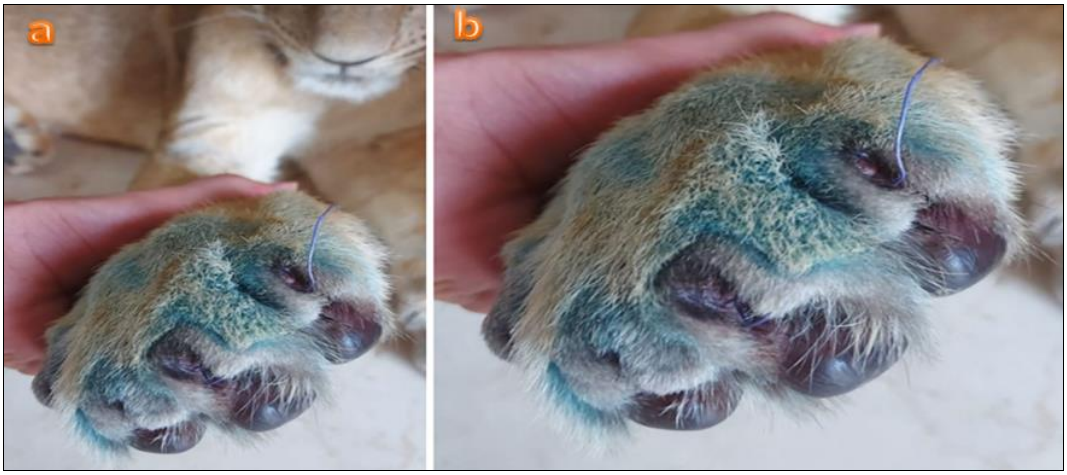

Fig 4: a and b one stitch lost its tensile strength

Fig 5: a and b the sites of surgery healed normally without complication.

In the first 3 days after surgery, the animals recumbent most of the time and sometimes licked the site of surgery or suturing. One stitch lost its tensile strength at the 2nd day but the wound healed by second intention. Itching, or pruritis, is a part of recovery when animal have a healing wound. Whether it had a traumatic wound or surgical wound closed by either stitches, staples, or glue, pruritis is a normal part of cell reconstruction. As cells rebuild, there are chemical and mechanical reactions that cause itching. The important thing is to not disrupt this process. The actual pain and itching start during the inflammatory phase of wound healing. In order to help clear the wound's base and make room for new cells, the inflammatory cells rush to the wound site. Histamines, which are produced by some of those cells, aid in opening the vessels surrounding the wound so that immune cells may start cleaning it up. Unfortunately, another major chemical source of itching is histamines. Excessive itching may occasionally indicate a problem with the healing of an animal wound. An increase in itching and issues with wound healing can be caused by necrotic tissue, infection, excessive fluid accumulation, and other factors. (Zimlich, and Sullivan, 2021; Upton, *et al* 2013) [13, 12].

Licking the toes habit was started again 7 days after surgery. During the proliferation phase of healing, when cells arrive at the wound site to form new tissue, they layer cells to create a matrix that has filled up with various cell types, resulting in a sensitive area of new growth. Fluid accumulates beneath the wound surface when these new layers are drawn together in the last stage. At that point, the old nerve connections are linked with new ones, causing a mechanical reaction that

causes itching. (Zimlich, and Sullivan, 2021; Upton, *et al* 2013) [13, 12].

Lameness was resulted due to post-operative pain and pain as a result of the inflammatory stage of wound healing, in addition, the early postoperative pain is more common after blade onychectomy (MacPhail, 2013) [9].

Because the lions depended on the metacarpal pad while they walk, the tissues of the toes took times of rest; this helped these tissues to heal normally.

The animals return to normal behavior without any bad habits like biting. In order to find out how common behavior issues in cats were and whether they differed by the cat's sex, Morgan and Houpr conducted a poll of a computer group interested in pets in 1989 [10]. They discovered that a noticeably higher proportion of declawed cats were observed to jump on tables or countertops than intact cats. The proportion of each behavior was the same for both sexes, however there was a noticeable increase in meowing and jumping on counters. They mentioned that cats without claws are not more likely to experience issues than cats with claws.

Conclusions

This type of surgery is simple and easy to done with minimal bleeding. Onychectomy did not effect on lions behaviors. It was done under sterile conditions by experienced veterinary surgeons and the results gave a minimal side effect or complication.

Complications after bilateral declawing of lions were lameness and itching (licking the operation area), which led to knot failure, but the wound healed by second intention without protruding the 2nd phalanx. The claws did not re-growth after these surgeries, and therefore the incisional blade method is suitable for onychectomy in lions

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Conflict of interest

There is no conflict of interest.

References

1. Abduljaleel MR, Abdulrazaq AW, Jassim MM, Abbas MF, Alfaris AA, Naeem RM, *et al*. Understanding the synergistic impact of atropine with xylazine and ketamine on recovery time, heart rate and respiratory rate in male rabbits. Assiut Veterinary Medical Journal. 2025;71(187):237-246. https://www.doi.org/10.21608/avmj.2025.341413.1505
2. Breitreiter K. Case Report: Late-onset osteosarcoma after onychectomy in a cat. Journal of Feline Medicine and Surgery Open Reports, 2019. Article reuse guidelines: sagepub.com/journals-permissions DOI:10.1177/2055116919842394. 5 pages.
3. Clark K, Bailey T, Rist P, Matthews A. Comparison of 3 methods of onychectomy. Canadian Veterinary Journal. 2014;55(3):255-262.
4. Cueto M, CamaroÂs E, Castaños P, OntañoÂn R, Arias P. Under the Skin of a Lion: Unique Evidence of Upper Paleolithic Exploitation and Use of Cave Lion (Panthera spelaea) from the Lower Gallery of La Garma (Spain); 2016. PLOS ONE | DOI:10.1371/journal.pone.0163591.
5. Ellison GW. Feline Onychectomy Complications: prevention and management. NAvc clinician's brief. 2003, Pp: 29-33.
6. Fahlman A, Loveridge A, Wenham C, Foggin C, Arnemo JM, Nyman G. Reversible anaesthesia of free-ranging lions (*Panthera leo*) in Zimbabwe. Journal of the South African Veterinary Association.. 2005;76(4):187-192.
7. Grier VKC, Peterson N. Indoor Cats, Scratching, and the Debate over Declawing: When Normal Pet Behavior Becomes a Problem. Chap. 3, Book: The State of the Animals III, Humane Society Press. Washington, D.C., 2005, 72-41.
8. Kogan LR, Little SE, Hellyer PW, Tacher RS, Gallie RR. Feline onychectomy: Current practices and perceptions of veterinarians in Ontario, Canada. Canadian Veterinary Journal, 2016;57:969-975.
9. MacPhail CM. Surgery of the Integumentary System. Chapter 16. Part Two: Soft Tissue Surgery. Fossum, T. W: Small Animal SURGERY (book), 4th ed. Mosby, Inc., an affiliate of Elsevier Inc. 2013, 190-289.
10. Morgan M, Houpr KA. Feline Behavior Problems: The Influence of Declawing. Anthrozoos A Multidisciplinary Journal of the Interactions of People & Animals. 1989;3(1):50-53.
11. Nzalak JO, Eki MM, Sulaiman MH, Umosen AD, Salami SO, Maidawa SM, *et al*. Gross Anatomical Studies of the Bones of the Thoracic Limbs of the Lion (*Panthera leo*). Journal of Veterinary Anatomy. 2010;3(2):65-71.
12. Upton D, Richardson C, Andrews A, Rippon M. Wound pruritus: Prevalence, aetiology and treatment. Journal of Wound Care. 2013;22(9):501-508
13. Zimlich R, Sullivan D. Medical review: Why Does the Area Where I Have Stitches. Itch and What to Do About It; 2021. https://www.healthline.com/health/itchy-stitches

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