ZBIRKA
COLLECTION OF
VETERINARSKIH
VETERINARY
INSTRUMENATA
INSTRUMENTS
IZ MUZEJA ZA
FROM THE MUSEUM
POVIJEST
OF VETERINARY
VETERINARSTVA
HISTORY

UNIVERSITAS STUDIORUM ZAGRABIENSIS MDCLXIX

VETERINARSKI FAKULTET U ZAGREBU · VETERINARSKI FAKULTET · 1919

1919 - 2009


SVEUČILIŠTE U ZAGREBU - VETERINARSKI FAKULTET
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1919

SPOZNAJE IZ HRVATSKE VETERINARSKE POVIJESTI
INSIGHTS FROM CROATIAN VETERINARY HISTORY

U povodu 90-te godišnjice Veterinarskog fakulteta Sveučilišta u Zagrebu

To mark the 90th anniversary of the Faculty of Veterinary Medicine of the University of Zagreb

ZBIRKA VETERINARSKIH INSTRUMENATA IZ MUZEJA ZA POVIJEST VETERINARSTVA

COLLECTION OF VETERINARY INSTRUMENTS FROM THE MUSEUM OF VETERINARY HISTORY

Zagreb, 2009.

Izložba Zbirka veterinarskih instrumenata iz Muzeja za povijest veterinarstva
Exhibition of the Collection of Veterinary Instruments from the Museum of Veterinary History

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Collection of Veterinary Instruments from the Museum of Veterinary History

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Contents

3. Veterinarski instrumenti za upotrebu iz kirurgije

3. Veterinary instruments for use in surgery

Predgovor

U 2009. godini Veterinarski fakultet Sveučilišta u Zagrebu obilježava devedesetu obljetnicu rada. Budući da se postojanost i izvrsnost Fakulteta očituju kroz njegovu povijest Dekanski kolegij Veterinarskog fakulteta odlučilo je tiskati Zbirku veterinarskih instrumenata iz Muzeja za povijest veterinarstva.

Foreword

In 2009 the Faculty of Veterinary Medicine of the University of Zagreb is marking the 90th anniversary of its work. In light of the constancy and excellence of the Faculty which have been seen throughout its history, the Dean and staff of the Veterinary Faculty have decided to publish Collection of veterinary instruments from the Museum of Veterinary History.

Kratki pregled povijesti osnivanja Muzeja

Veterinarska visoka škola u Zagrebu ustrojena je na osnovi Uredbe od 31. kolovoza 1919. (objavljena u Službenim novinama Kraljevstva Srba, Hrvata i Slovenaca 11. rujna 1919.). Prema toj Uredbi određeno je da će se «Veterinarska visoka škola u Zagrebu otvoriti u naučnoj godini 1919/1920., te da će se pojedini semestri ustrojiti postupno». Nekoliko dana nakon toga imenovani su i suplenti Eugen Podaubsky, dr. Petar Gjurić i Antonije Vuković, koji je zahvalio na suplenturi, pa je umjesto njega imenovan Jaroslav Sakař. Naredbom Povjereništva za prosvjetu od 26. rujna 1919. otvoren je prvi semestar, a uprava škole povjerena je dekanu Filozofskog fakulteta prof. dr. sc. Stanku Hondlu. Na temelju Nacrta Naredbe otvoreno je 12 zavoda, studij je trajao 8 semestara, a studenti su upisivali 21 obvezatni predmet, među kojima je bio i predmet Historija veterinarstva, čija su predavanja počela u šk. god. 1921/1922. Njezin prvi nastavnik bio je prof. dr. sc. Fran Zavrnik a nastavu je održavao do godine 1941. U šk. god. 1945/46. nastavu preuzima prof. dr. sc. Tomislav Ciliga i održava je do godine 1950. U razdoblju od 1950.- 1957. nastavu održava honorarni nastavnik dr. sc. Leandar Brozović. Nakon njega predavanja iz povijesti veterinarstva preuzima prof. dr. sc. Stjepan Rapić i održava ih do godine 1978., kada je umro.

Brief review of the history of the founding of the Museum

The College of Veterinary Medicine was established in Zagreb on the basis of an Ordnance of 31st August 1919 (published in the Official Gazette of the Kingdom of Serbs, Croats and Slovenes on 11th September 1919). According to this Ordnance it was established that: "The Veterinary College in Zagreb will be opened in the 1919/20 academic year, and that individual semesters would be organized progressively". A few days after that temporary teachers Eugen Podaubsky, dr. Petar Gjurić were appointed, and Antonije Vuković expressed his thanks for the position but Jaroslav Sakař was appointed instead. By order of the Education Commission of 26th September 1919 the first semester began and the administration of the school was entrusted to the Dean of the Arts Faculty, prof. dr. sc. Stanko Hondl. On the basis of a Draft Ordinance, 12 departments were opened, the course of study lasted 8 semesters and the students enrolled for 21 obligatory subjects, including the subject: The History of Veterinary Medicine, classes in which began in the 1921/22 academic year. The first lecturer in this subject was prof. dr. sc. Fran Zavrnik, and the classes went on until 1941. In the 1945/46 academic year classes were given by the part time lecturer dr. sc. Leandar Brozović. After him teaching about the history of veterinary medicine was taken on by prof. dr. sc. Stjepan Rapić and he continued to teach until 1978 when he died.

Od tada pa do danas nastavu održava prof. dr. sc. Vesna Vučevac Bajt. Važno je napomenuti da je nastava iz povijesti veterinarstva bila prva nastava iz povijesti neke biomedicinske struke u Hrvatskoj, a bila je prekinuta samo za vrijeme Drugog svjetskog rata i u prvim poslijeratnim godinama (1941-1945).

Tijekom godina status i naziv predmeta i pripadajućeg Zavoda često su se mijenjali. Godine 1936. donesena je Uredba kojom je osnovan Seminar za povijest veterinarstva s muzejom. Te se godine tako prvi put spominje Veterinarsko-povijesni muzej u Zagrebu. Neposredno prije početka Drugog svjetskog rata donesena je nova Uredba kojom je propisan naziv Seminar i muzej za povijest veterinarstva, koji ostaje do godine 1954., kada je provedena reorganizacija nastave i oblikovan novi predmet pod naslovom Seminar za uvod u veterinarsku medicinu i povijest veterinarstva. Godine 1956. dopunjen je postojeći naziv, te je glasio Seminar za uvod u veterinarstvo i povijest veterinarstva s muzejom. Godine 1965. mijenja se naziv u Kabinet za povijest veterinarstva, a 1977. mijenja se naziv u Seminar za povijest veterinarstva i ulazi u sastav Zavoda za društvene znanosti u čijem je sastavu djelovao sve do godine 2005., kada je provedena nova reorganizacija nastavnih jedinica, pa je osnovan Zavod za povijest, etiku i sociologiju (od godine 2008. Zavod za povijest i etiku veterinarstva), a Muzej za povijest veterinarstva postaje sastavni dio Zavoda.

From then until the present day the course has been given by prof. dr. sc. Vesna Vučevac Bajt. It is important to mention that the course on the history of veterinary medicine was the first course in the history of a biomedical profession in Croatia, and it was only interrupted at the time of the Second World War and the early post-war years (1941-1945).

Over the years the status and title of the subject and the Institute have changed frequently. In 1936 an Ordinance was passed whereby the Seminar on the History of Veterinary Medicine and Museum was founded. In that same year the Historical Veterinary Museum in Zagreb was mentioned for the first time. Immediately before the Second World War a new Ordinance was adopted which prescribed the title of the Seminar and the Museum of the History of Veterinary Medicine, which remained until 1954, when the teaching courses were reorganized and a new subject was formed entitled: Seminar on an Introduction to Veterinary Medicine and the History of Veterinary Medicine. In 1956 the existing title was supplemented so that it became the Seminar on an Introduction to Veterinary Medicine and the History of Veterinary Medicine and Museum. In 1965 the title was changed to the Department of the History of Veterinary Medicine, and in 1977 the title changed again to the Seminar for the History of Veterinary Medicine and it came under the system of the Institute of Social Sciences, where it remained right up until 2005, when the teaching courses were again reorganized and the Institute for History, Ethics and Sociology was founded (since 2008 the Institute for History and Ethics of Veterinary Medicine), and the Museum of the History of Veterinary Medicine became part of that Institute.

Za osnutak i djelatnost Muzeja osobito je zaslužan prof. dr. sc. S. Rapić, koji je okupio skupinu entuzijasta i osnovao Sekciju za povijest veterinarstva Hrvatske, koja je dugo godina djelovala unutar Društva veterinara i veterinarskih tehničara RH. Sekcija je osnovala Biblioteku za povijest veterinarstva Socijalističke Republike Hrvatske u kojoj je tiskan veći broj knjiga veterinarsko-povijesnog sadržaja, organizirala mnoge stručne sastanake i znanstvene simpozije na kojima su sudjelovali i strani stručnjaci, a uz pomoć svojih članova prikupljala je arhivsku građu i druge izloške za veterinarki muzej. Materijalna podloga za rad Sekcije i osnutak Muzeja za povijest veterinarstva ostvareni su uz pomoć različitih subjekata kao npr. iz Fonda za suzbijanje stočnih zaraza, Republičkog fonda za naučni rad i Republičke zajednice za zdravstvenu zaštitu stoke, te većeg broja veterinarskih stanica. Muzej je bio smješten u neprikladnom prostoru sve do godine 1979., kada je u povodu proslave 60-te obljetnice Fakulteta dobio novi prostor u kojem je prof. dr. sc. Vesna Vučevac Bajt prvi put uredila stalni izložbeni prostor, pa je Muzej od tog vremena otvoren za javnost. Prikupljenim se novcem uredio izložbeni prostor i osigurao otkup i uređenje značajnih izložaka kojim danas raspolaže Muzej. Izlošci su razvrstani po skupinama na: arhivsku građu, veterinarsku i drugu srodnu literaturu, zbirku veterinarskih instrumenata i zbirku potkova. Za izradu Zbirke odabrani su veterinarski instrumenti, koji su imali najveće značenje u razvoju veterinarske znanosti i prakse.

prof. dr. sc. Vesna Vučevac Bajt

Prof. dr. sc. S. Rapić was particularly to thank for the foundation and work of the Museum, as he gathered together a group of enthusiasts and founded the Department of the History of Veterinary Medicine in Croatia, which for many years worked within the Society of Veterinarians and Veterinary Technicians of the Republic of Croatia. The department founded a library on the history of veterinary medicine in the Socialist Republic of Croatia in which a large number of books were printed with veterinary and historical contents, it organized many meetings and scientific symposia at which foreign experts also took part, and with the help of its members it collected archive materials and other exhibits for the veterinary museum. The material basis for the work of the department and the foundation of the museum of the history of veterinary medicine were realized with the help of various entities, such as for example the Fund for Prevention of Livestock Infections, the Republic Fund for Scientific Work and the Republic Unit for Health Care of Livestock, and a large number of veterinary clinics. The museum was located in unsuitable premises right up to 1979 when, to mark the celebration of the 60th anniversary of the Faculty, it moved to a new building, in which prof. dr. sc. Vesna Vučevac Bajt for the first time set up a permanent exhibition area, and from that time the museum was open to the public. The money collected was used to refurbish the exhibition area and provide for the purchase and display of the important exhibits which the museum now has available. The exhibits are divided into categories, as follows: archive materials, veterinarian and other related literature, a collection of veterinarian instruments and a collection of horseshoes. The veterinarian instruments have been chosen for the collection as they have had the greatest importance in the development of veterinarian science and practice.

prof. dr. sc. Vesna Vučevac Bajt

ODABRANI VETERINARSKI INSTRUMENTI IZ MUZEJA ZA POVIJEST VETERINARSTVA

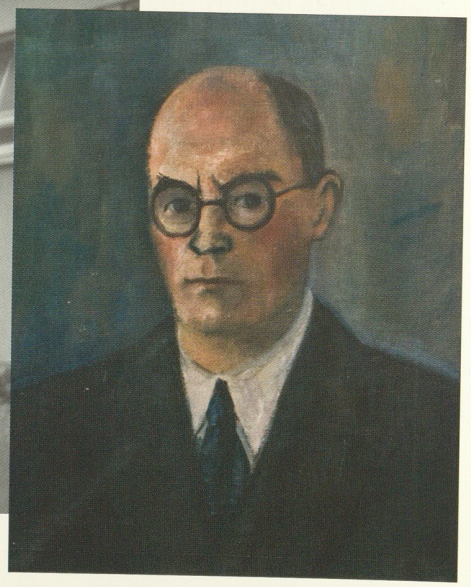
SELECTED VETERINARIAN INSTRUMENTS FROM THE MUSEUM OF VETERINARY HISTORY

1

VETERINARSKI INSTRUMENTI ZA UPOTREBU KOD UNUTARNJIH BOLESTI

VETERINARY INSTRUMENTS FOR TREATMENT OF INTERNAL DISEASES

Klinika za unutarnje bolesti
Clinic of Internal Diseases



Prvi predstojnik Klinike za unutarnje bolesti prof. dr. sc. Lovro Bosnić
First head of the Clinic of Internal Diseases prof. dr. sc. Lovro Bosnić

Laboratorijska oprema

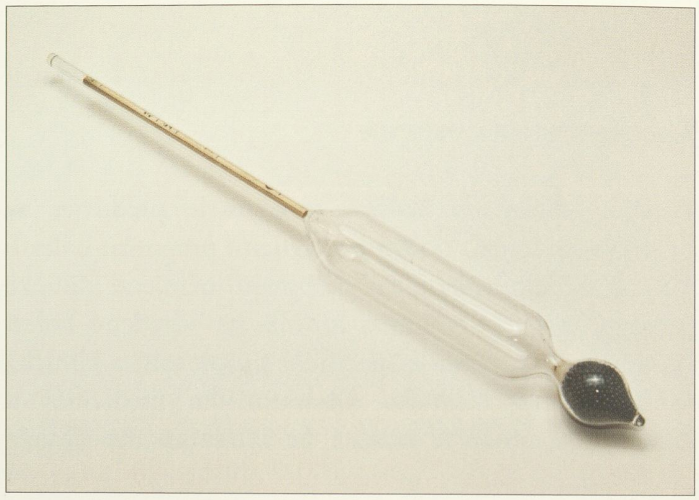
Pravilna dijagnoza bolesti osnovni je preduvjet za pravilno liječenje i dobro postavljenu prognozu bolesti. Već na temelju anamneze i ispravno učinjene kliničke pretrage može se postaviti sumnja na određenu bolest (posebice kada postoje specifični simptomi), a klinička je kemija (ili klinička laboratorijska medicina) u dvadesetom stoljeću postala nezaobilazan dio obrade pacijenta, te danas omogućuje objektivnu procjenu funkcije pojedinih organa i organskih sustava.

Laboratory equipment

The correct diagnosis of illness is a basic requirement for correct treatment and a well defined prognosis of the ailment. On the basis of medical history and correctly performed clinical tests it is already possible to confirm the suspicion of a specific ailment (especially where there are specific symptoms), and clinical chemistry (or clinical laboratory medicine) became a vital part of care of patients in the twentieth century, and today makes an objective assessment possible of the function of individual organs and organ systems.

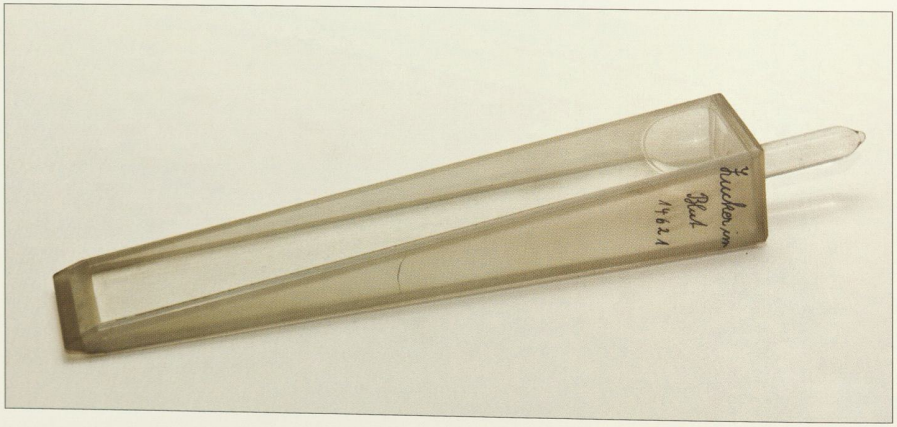
Slika 1.1. Detektor za određivanje amonijaka metodom prema Asaju

Picture 1.1. Ammonium detector via method according to Asaj



Slika 1.2. Urinometar za određivanje specifične težine mokraće

Picture 1.2. Urinometer for determination of urine specific gravity

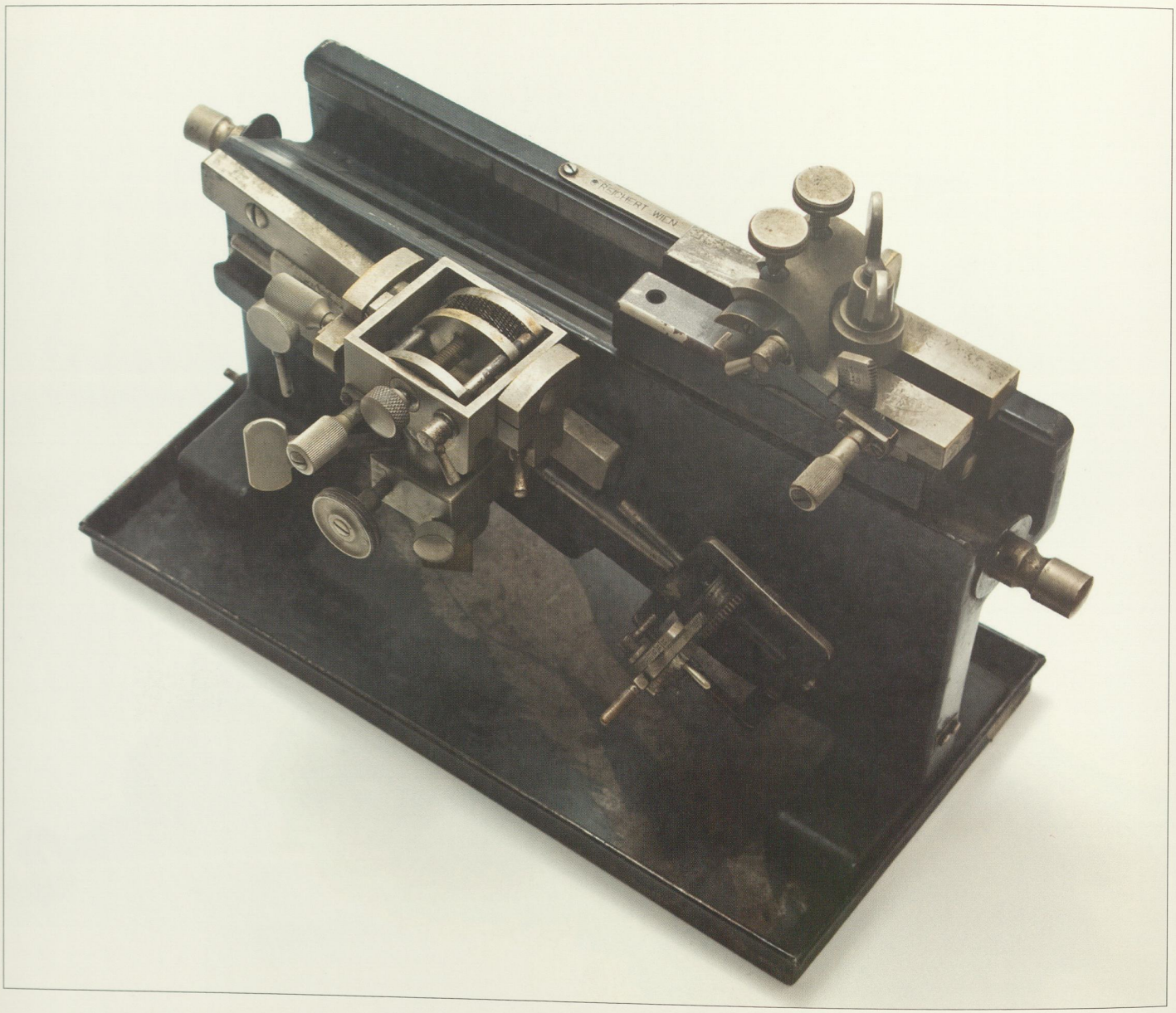


Slika 1.3. Refraktometar za određivanje koncentracije glukoze u krvi

Picture *1.3.* Refractometer for determination of glucose concentration in blood

Slika 1.4. Dvije vrste ručne centrifuge za pripremu plazme ili seruma

Picture 1.4. Two types of centrifuge for preparation of blood serum or plasma

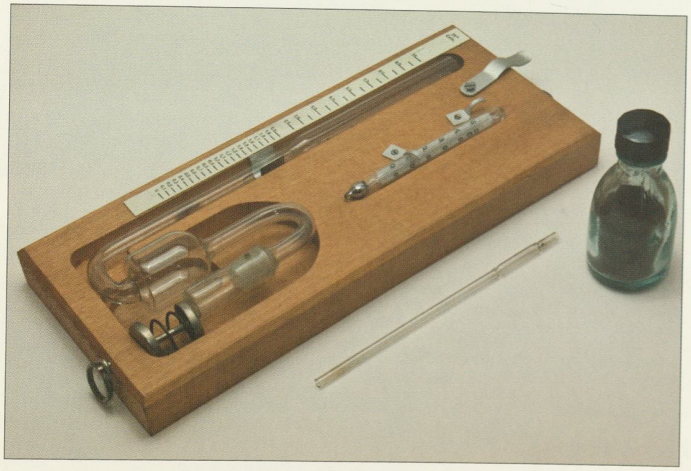


Slika 1.5. Mikrotom-nož za pripremu ukalupljenih preparata tkiva za histološku pretragu

Picture 1.5. Microtome-knife for preparation of specimens for microscopy in histology

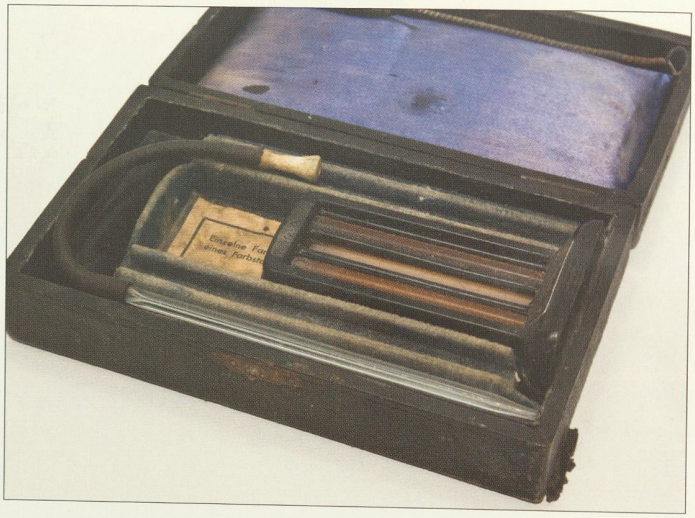
Slika 1.6. Saharometar, polusjenski prema Zeisu za određivanje šećera u otopini

Picture 1.6. Saccharometer according to Zeiss for determination of sugar in solutions



Slika 1.7. Saharomanometar za određivanje šećera u otopini

Picture 1.7. Saccharometer for determination of sugar in solutions



Slika 1.8. Hemoglobinometar prema Sahliju za određivanje koncentracije hemoglobina

Picture 1.8. Haemoglobinometer according to Sahli for determination of haemoglobin concentration

Slika 1.9. Hemacitometar za određivanje broja eritrocita i leukocita

Picture 1.9. Haemocytometer for determination of erhytrocyte and leukocyte number

Slika 1.10. Dodatni uređaj za mikroskop, za utvrđivanje polarizacije prema Seitzu

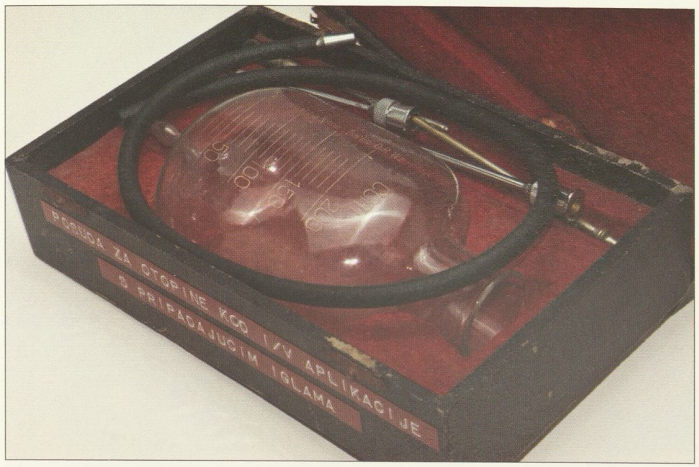
Picture 1.10. Additional equipment for a light microscope - for polarisation determination according to Seitz

Pribor za aplikaciju lijekova, vađenje i puštanje krvi

Lijekovi se kod životinja mogu primjenjivati na mnoge načine: na usta (peroralno), injekcijom u mišićje (intramuskularno), potkožno (supkutano), injekcijom u venu (intravenski), u peritonejsku šupljinu (intraperitonejski), u zglobnu šupljinu (intraartikularno) itd. Nadalje, uzorci za laboratorijske pretrage u životinja se najčešće dobivaju punkcijom površinskih vena (primjerice vratne vene, podlaktične vene itd.).

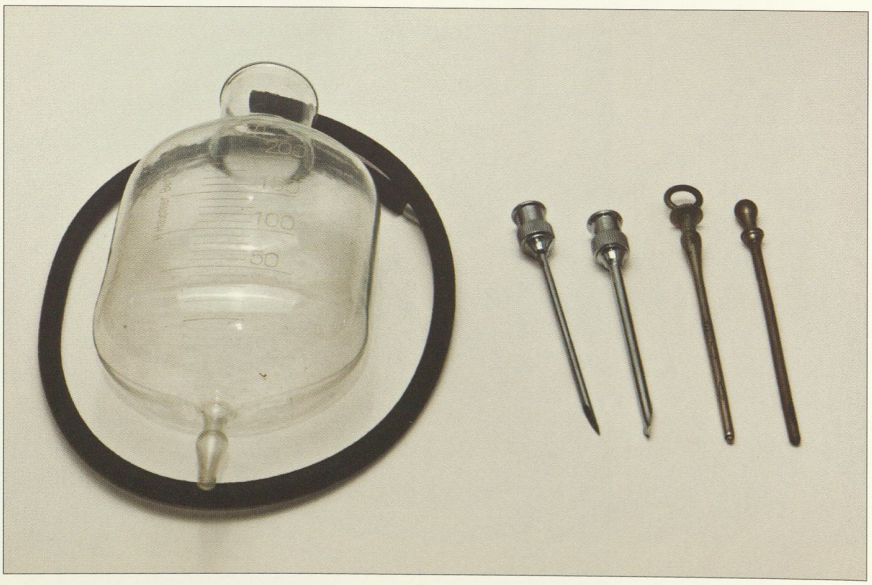
Instruments for application of medication and blood sampling

Medication may be used in many ways in animals: by mouth (peroral), by injection into the muscle (intramuscularly), under the skin (subcutaneously), into a vein (intravenously), into the peritoneal cavity (intraperitoneal), into the joint cavity (intra-articularly) etc. Furthermore, samples for laboratory tests in animals are most often taken by a puncture of a surface vein (for example in the neck, under the leg joint etc.).



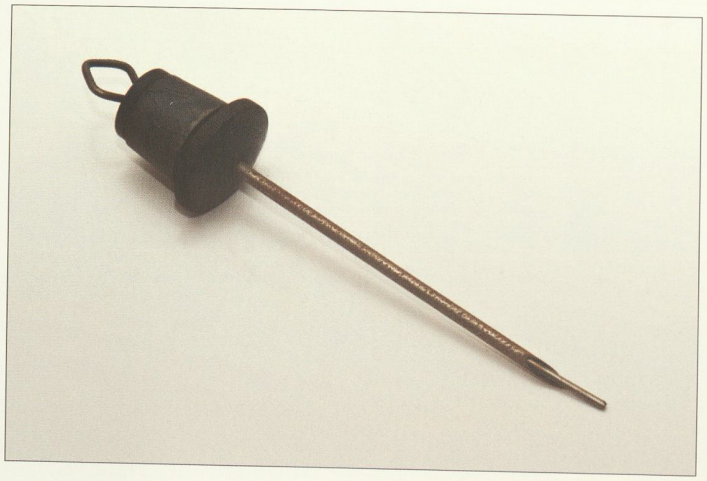
Slika 1.11. Posuda za otopine za intravensku aplikaciju s pripadajućim iglama

Picture 1.11. Set for intravenous application of fluids with needles



Slika 1.12. Posuda za otopine za intravensku aplikaciju s pripadajućim iglama

Picture 1.12. Set for intravenous application of fluids with needles



Slika 1.13. Igla za punkcije s mandrenom
Picture 1.13. Punction needle with a mandrin

Slika 1.14. Igle za vađenje i puštanje krvi u konja
Picture 1.14. Needles for blood sampling for use in horses

Slika 1.15. Injekcijske brizgalice s dozatorima
Picture 1.15. Syringes with dosing devices

Slika 1.16. Injekcijske brizgalice
Picture 1.16. Syringes

Slika 1.17. Igle s brizgalicom i lijekovima
Picture 1.17. Syringes and needles with medicines

Slika 1.18. Injekcijska brizgalica za intradermalnu aplikaciju
Picture 1.18. Syringe for intradermal application

Slika 1.19. Injekcijska brizgalica s iglama
Picture 1.19. Syringe with needles

Slika 1.20. Injekcijske igle
Picture 1.20. Needles

Slika 1.21. Posuda za otopine za intravensku aplikaciju

Picture 1.21. Vial for intravenous fluids

Slika 1.22. Aplikator bolusa za peroralnu aplikaciju u velikih životinja

Picture 1.22. Bolus applicator for peroral use of medicines for large animals

Slika 1.23. Aplikator za primjenu kapsula u velikih životinja
Picture 1.23. Capsule applicator for large animals

Pribor za sputavanje i smirivanje životinja, dijagnostički pribor

Bolesnu životinju može se pregledati samo ako je mirna, a budući da se životinje često boje nepoznatih ljudi, okoline i pretrage potrebno je nastupiti sigurno i oprezno. Ako je životinja jako nemirna ili čak zloćudna, može se umiriti primjenom dopuštenih prisilnih sredstava (pr. brunde). Goveda i svinje koje leže i teško se ustaju nekad se podizalo primjenom električne struje (tzv. "cvrčkom").

Perkusija je metoda kliničke pretrage kod koje se koriste sluh i opip. Bit je pretrage da se dio tijela koji se pretražuje brzim i kratkim udarcima dovede u stanje titranja. Prema šumu koji pritom nastaje i prema otporu tkiva može se zaključiti o fizikalnim svojstvima tkiva i organa. Neposredna perkusija podrazumijeva udaranje perkusijskim čekićem po površini ili plesiometru.

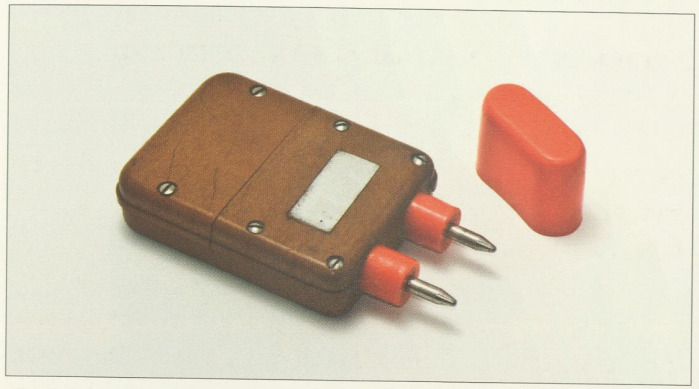
Prisutnost željeznih, feromagnetskih stranih tijela u predželucima i/ili okolnim organima s velikom vjerojatnošću utvrđuje se pomoću detektora za metalne predmete (endometaloskopa).

Instruments for animal containment and pacification, diagnostic instruments

A sick animal may only be examined if it is still, and since animals are very often afraid of unknown people, the environment and the test, it is necessary to act safely and with care. If the animal is very disturbed or even vicious, it may be pacified by the use of permitted means of force (such as a twitch). Cattle and pigs which are lying down and have difficulty standing up are sometimes lifted by using electrical shocks (known as a "cricket").

Percussion is a method of clinical testing where the senses of hearing and touch are used. The essence of the test is that the part of the body being tested is made to quiver by short sharp blows. According to the sound produced and the resistance of the tissue, the physical condition of the tissue and organs may be deduced. Direct percussion means hitting the surface with a percussion hammer or with a plesiometer.

The presence of iron or ferromagnetic bodies in the forestomach and/or surrounding organs may be confirmed with a high level of probability using a metal detector (endometaloscope).



Slika 1.24. Električni tjerač, tzv. "cvrčak" za podizanje i tjeranje goveda i svinja

Picture 1.24. Electrical "cricket" for mobilization of cattle and pigs

Slika 1.25. Nosna brunda za smirivanje goveda

Picture 1.25. Nasal twitch for cattle pacification

Slika 1.26. Kutomjer za mjerenje kožnog nabora pri tuberkulinizaciji goveda

Picture 1.26. Protractor for the measurement of skin fold for tuberculinization

Slika 1.27. Perkusijski čekići koji se koriste u pretrazi brojnih tkiva i organa kao npr. perkusiji pluća i perkusiji abdomena

Picture 1.27. Percussion hammer used for percussion of lungs, abdomen etc.

Slika 1.28. Plesiometri za perkutiranje tjelesnih šupljina
Picture 1.28. Plesiometers for percussion of body cavities

Slika 1.29. Detektor za metalne predmete u preživača
Picture 1.29. Metal detector for use in ruminants

Klinovi i otvarači za usta

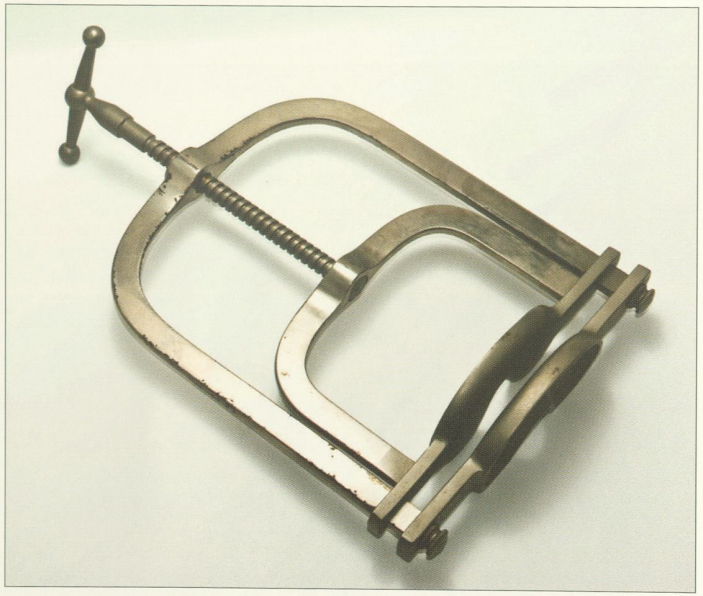
Usta kod životinja otvaraju se rukom ili posebnim otvaračima. Kod sondiranja (uvođenja cijevi u želudac) govedu, malim preživačima, psima i mačkama često stavljamo u usta klinove kroz koje zatim uvodimo sondu.

Pins and mouth openers

Animals' mouths may be opened by hand or by a special opener. When inserting a probe (when a tube is introduced into the stomach) in cattle, small cud chewers, dogs and cats, we often place pins in the mouth through which we introduce the probe.

Slika 1.30. Klin za sondiranje velikih životinja
Picture 1.30. Pin used for probe placement in large animals

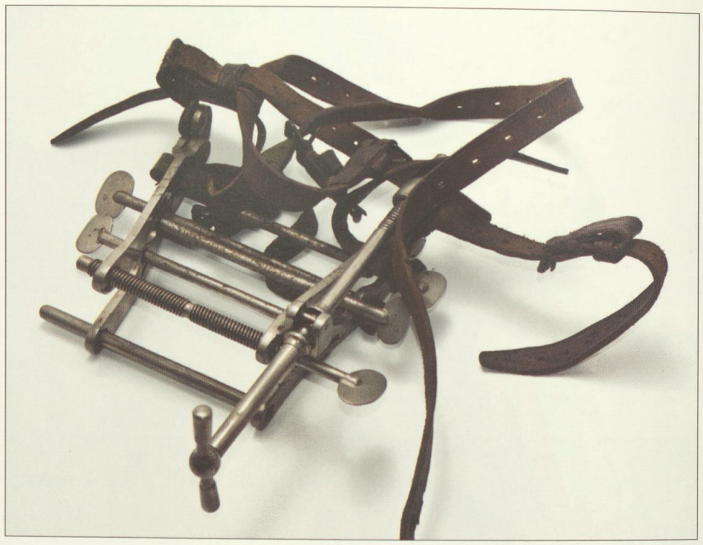
Slika 1.31. Klinasti otvarač za usta prema Bayeru za goveda
Picture 1.31. Mouth opener for cattle according to Bayer



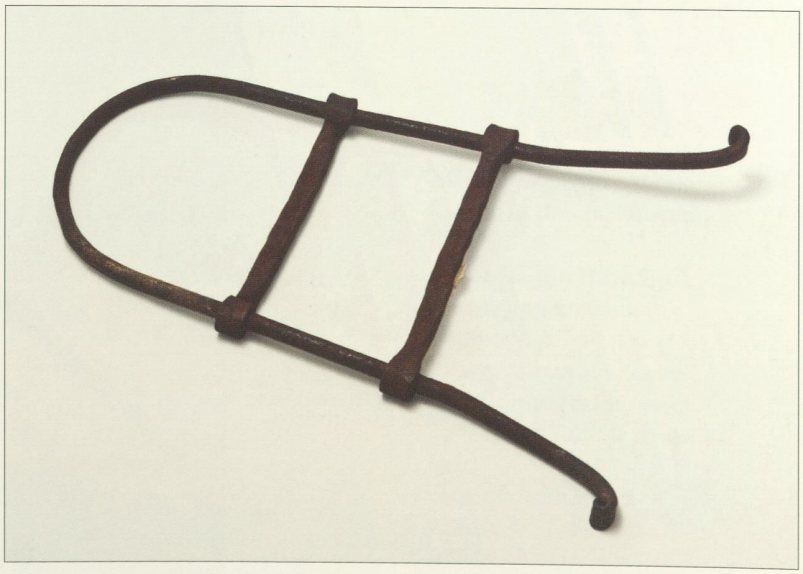
Slika 1.33. Otvarač za usta na vijak prema Güntheru za konja
Picture 1.33. Mouth opener for horses according to Günther

Slika 1.32. Otvarač za usta prema Schulzeu za goveda
Picture 1.32. Mouth opener for cattle according to Schulze

Slika 1 34. Otvarač za usta za velike životinje
Picture 1.34. Mouth opener for large animals



Slika 1.35. Otvarač za usta za pse
Picture 1.35. Mouth opener for dogs



Slika 1.36. Otvarači za usta za velike životinje
Picture 1.36. Mouth openers for large animals

Sonde i kateteri

Sondiranje podrazumijeva uvođenje cijevi (najčešće gumene) u želudac. Konj se najčešće sondira kroz nos, a govedo, svinja i pas kroz usta. Kateterizacija podrazumijeva uvođenje katetera u mokraćni mjehur. Pri uvođenju katetera ispituje se prohodnost mokraćovoda, ili se utvrđuje neprohodnost. Kateteri mogu biti metalni, gumeni ili od plastične mase.

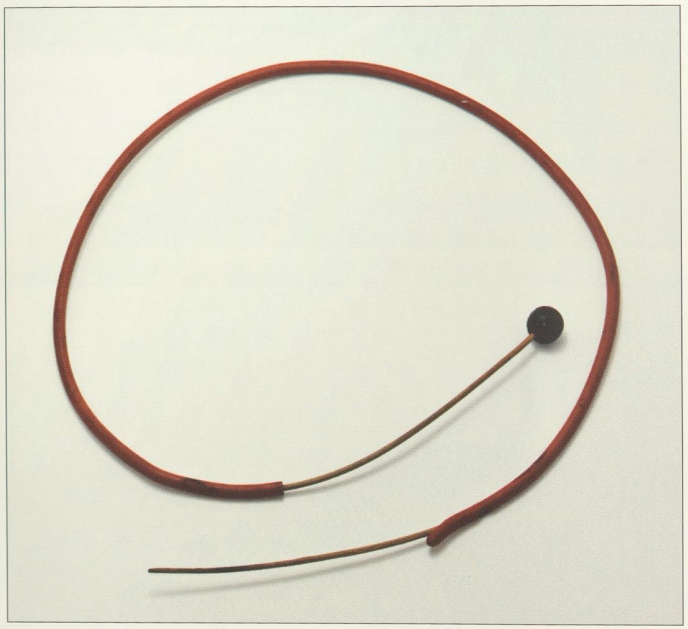
Probes and catheters

Using a probe involves the introduction of tubes (most often rubber) into the stomach. In horses the probe is most often fed through the nose, and in cattle, pigs and dogs through the mouth. Catheterization means introducing a catheter into the bladder. When inserting the catheter the flow in the urinary tract is tested, or a blockage may be found. Catheters may be metal, rubber or plastic.

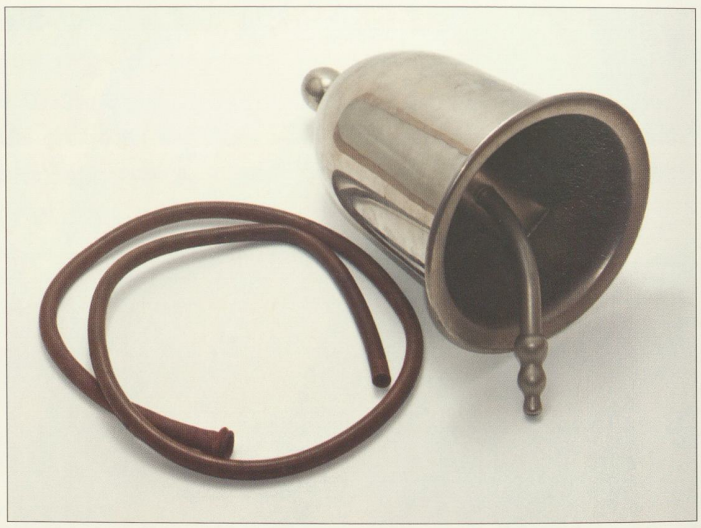
Slika 1.37. Jannetova brizgaljka
Picture 1.37. Jannet's syringe

Slika 1.38. Metalni kateteri za kobile:
kateter za ispiranje maternice (lijevo)
kateter za kateterizaciju mokraćnog mjehura (u sredini)
kateter za biopsiju (desno)

Picture 1.38. Metal catheters for mares:
catheter for uterine irrigation (left)
catheter for bladder catheterization (in the middle)
biopsy catheter (right)



Slika 1.39. Kateter za konja s mandrenom
Picture 1.39. Catheter for catheterization of horses with mandrin



Slika 1.40. Anitamponator za konje kod opstipacije
Picture 1.40. Anitamponator for use in obstipation in horses

Slika 1.41. Kateter za ispiranje za velike životinje
Picture 1.41. Catheter for irrigation for use in large animals

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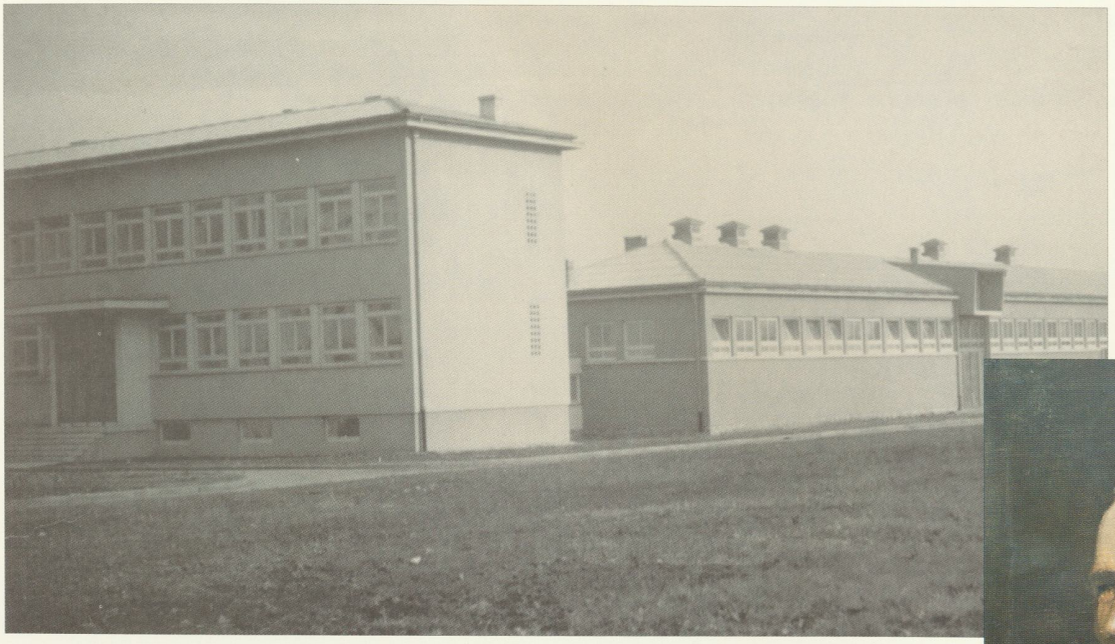
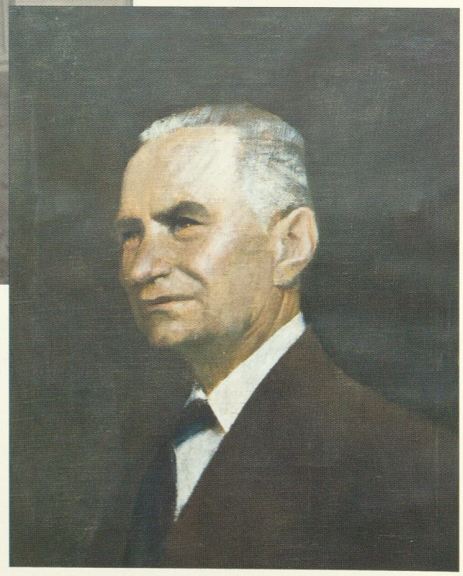


Klinika za porodništvo
Obstetrics Clinic



Prvi predstojnik Klinike za porodništvo
prof dr. sc. Mile Rajčević
The first head of Obstetrics Clinic
prof dr. sc. Mile Rajčević

Instrumenti za pomaganje kod poroda

Kod teških porođaja rodilje nisu sposobne vlastitim snagama svladati različite abnormalnosti tijekom poroda i istisnuti plod bez stručne pomoći. U takvim se slučajevima koriste sljedeći instrumenti:

Instruments for assisting births

When the birth is difficult, the dam is not capable of overcoming various abnormalities during the birth in her own strength to push the young out without expert assistance. In these cases the following instruments are used:

Slika 2.1. Porodiljski konopac - stavlja se na nogu ploda u velikih životinja i služi u prvom redu za izvlačenje ploda i za popravljanje različitih nepravilnih habitusa

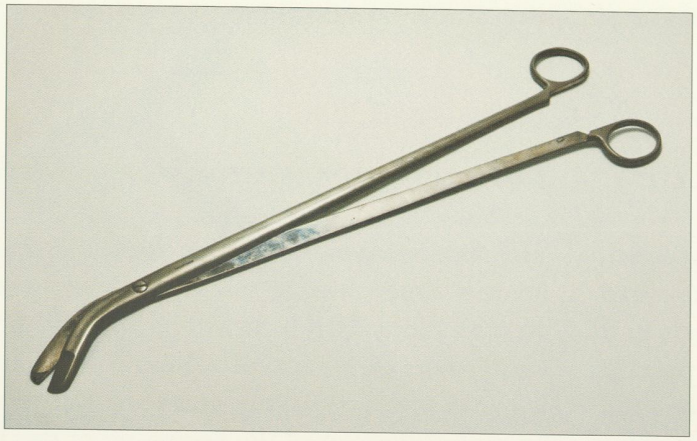
Picture 2.1. Birth strap - this is placed on the legs of the young in large animals and primarily serves to pull the young out and to correct various incorrect positions

Slika 2.2. Obermayerova bočna kuka - stavlja se fiksirana porodiljskim konopcem na bok ploda i služi za izvlačenje ploda

Picture 2.2. The Obermayer side hook is placed and fixed by a birth strap on the side of the young and is used to pull it out

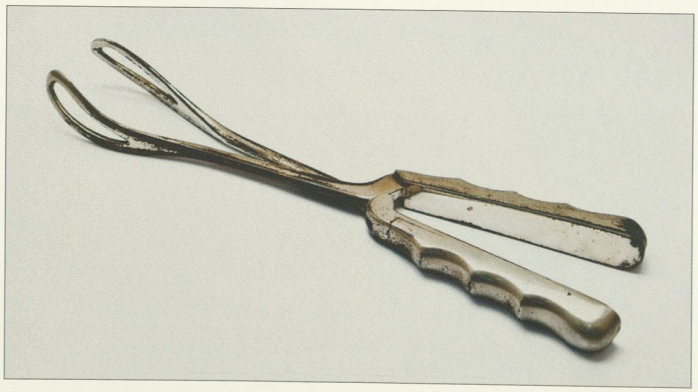
Slika 2.3. Harmsove oštre kuke - stavljaju se fiksirane porodiljskim konopcem u očne šupljine ploda (medijalni očni kut), a upotrebljavaju se kod mrtvih plodova

Picture 2.3. Harms sharp hooks are placed into the eyes of the young and fixed with birth strap (in the medial optical angle), and this is used when the young has died



Slika 2.4. Götzeove škare za vaginalnu histeretomiju, rezanje maternično grljka

Picture 2.4. Götze surgical scissors for vaginal hysterectomy for cutting the cervix



Slika 2.5. Bečki model kliješta za glavu ploda - forceps za pomaganje pri otežanom porodu kuja u slučaju kada je glava ploda zapela u zdjelici rodilje

Picture 2.5. Viennese model forceps for the head of the young - to assist in a difficult birth in a dam/bitch when the baby's head has become trapped in the mother's pelvis

Instrumenti za embriotomiju (dissectio foetus)

Prvi podatci o embriotomiji potječu još iz starog vijeka, spominje je rimski pisac Columella. On navodi da ovčari režu nožem plod u porođajnom kanalu ovce i vade ga u dijelovima ako to iziskuje potreba. No sve do početka 19. stoljeća ne može se još govoriti o embriotomiji u današnjem smislu riječi. Pravi razvoj suvremene embriotomije počinje tek potkraj 19. stoljeća kada su postavljeni temelji perkutane i supkutane embriotomske tehnike.

Embriotomski instrumenti su specijalna oruđa za komadanje ploda, koji imaju različite oblike, a različita je i tehnika kako se njima služimo.

Instruments for fetotomy (dissectio foetus)

The first information about fetotomy dates back to ancient times, and it was mentioned by the Roman writer Columella. He mentions how shepherds cut the lamb in the birth canal of a sheep with a knife and took it out in pieces if this was necessary. But we cannot talk about fetotomy until the beginning of the 19th century in today's sense of the word. The true development of contemporary fetotomy did not begin until the end of the 19th century, when the foundations were laid for percutaneous and subcutaneous fetotomy techniques.

Fetotomy instruments are special tools for dissecting the young, which have various forms and there is a variety of techniques for using them.

Slika 2.6. Poluoštra Kellerova lopatica za potkožnu embriotomiju

Picture 2.6. A semi sharp Keller scoop for subcutaneous fetotomy

Embriotomi - noževi za embriotomiju

Služe za rezove u koži ili trbušnoj stijenci kako bi se ispustila tekućina iz trbušne šupljine ploda kod hidropsa ili kod anasarke.

Embryotomy/fetotomy - knives for embryotomy/fetotomy

These are used for cutting the skin or stomach wall in order to release fluid from the abdomen of the young in cases of hydropsy or anasarca.

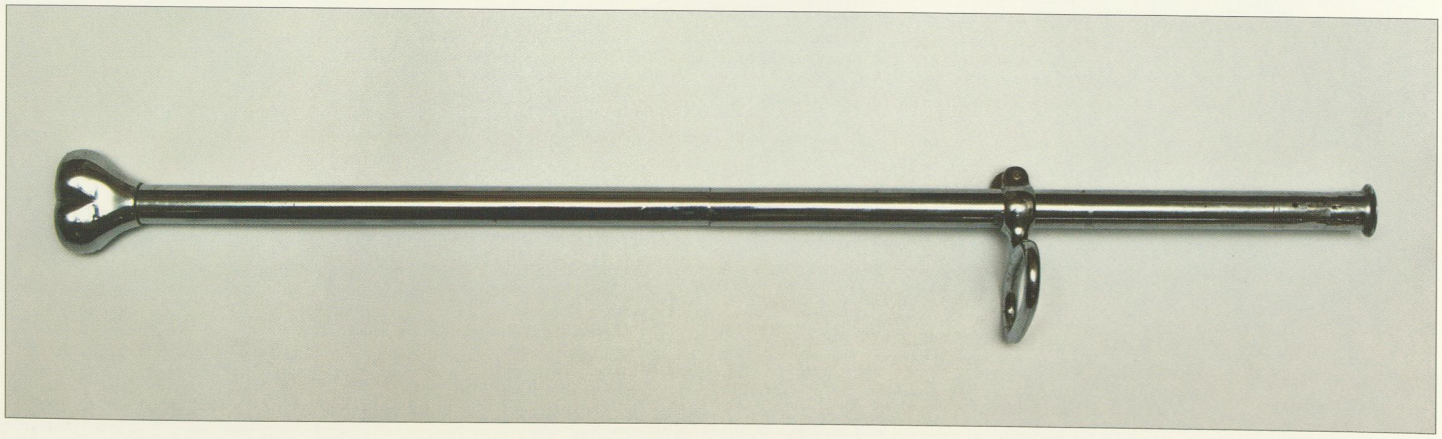
Slika 2.7. Noževi prstaši
Picture 2.7. Fetotomy knives

Slika 2.8. Držači za žičanu pilu i žičana pila
Picture 2.8. Holder for saw wire and saw wire

Slika 2.9. Simonovi držači za žičanu pilu - pila je sastavljena od nekoliko tanjih čeličnih žica koje su gusto isprepletene; žica se urezuje u fetusno tkivo, ako se snažno vuče za oba kraka pomoću držača (slika 2.8. i 2.9.) u jednom pa u drugom smjeru

Picture 2.9. Simon's holders for saw wire - the saw consists of several thin steel wires which are woven thickly together; the wire cuts into the tissue of the foetus if it is pulled strongly by both arms using the holder (pictures 2.8. and 2.9.) in one direction and then the other

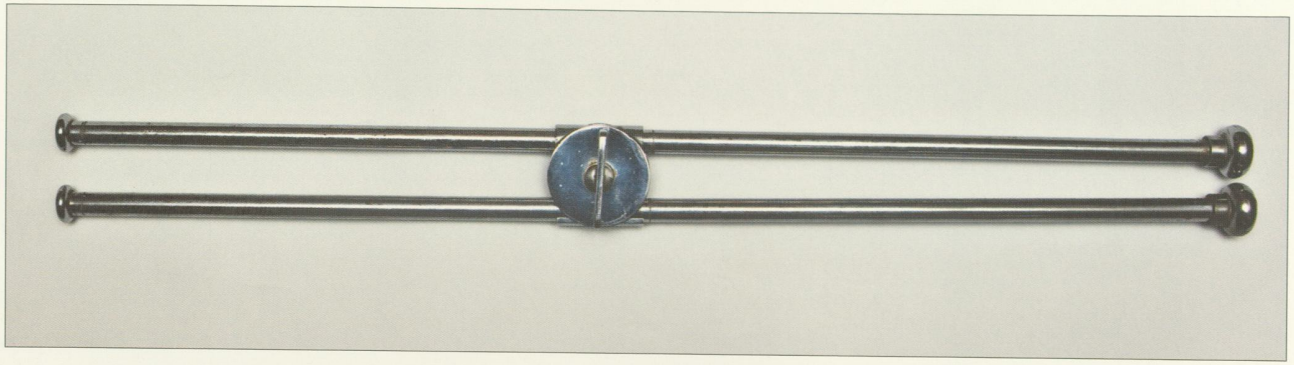
Slika 2.10. Glava jednocjevnog embriotoma prema Neubarth-Beneschu
Picture 2.10. The head of a single tube fetatome according to Neubarth-Benesch



Slika 2.11. Jednocjevni embriotom prema Neubarth-Beneschu
Picture 2.11. Single tube fetotome according to Neubarth-Benesch

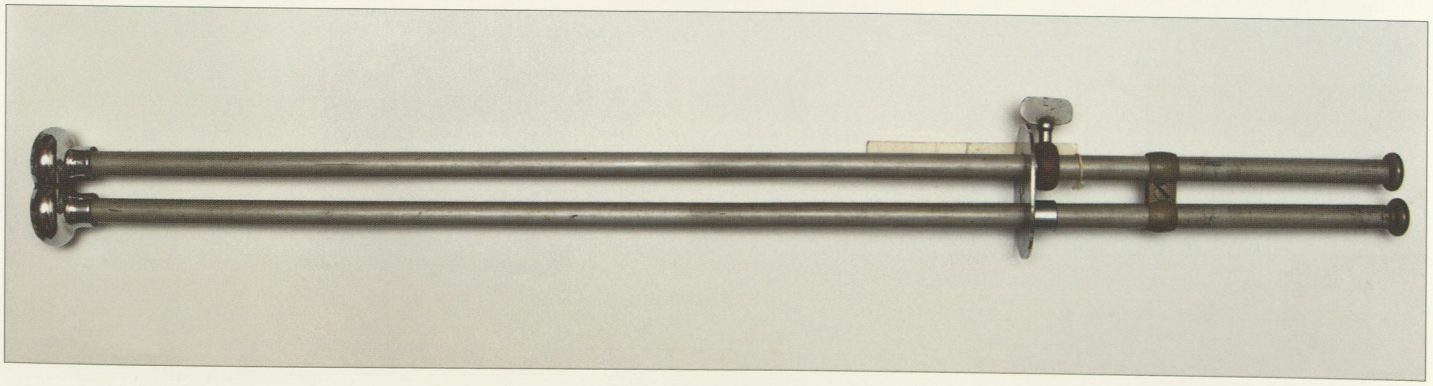
Slika 2.12. Elastične Glättlijeve cijevi - spiralne zaštitne cijevi za žičanu pilu

Picture 2.12. Elastic Glättli tubes - spiral protective tubes for the saw wire



Slika 2.13. Rebeskoov embriotom - embriotomske cijevi mogu se odijeliti jedna od druge

Picture 2.13. Rebesko fetotome - fetotomytubes which can be separated from one another



Slika 2.14. Tygesenov univerzalni embriotom normiran prema Götzeu

Picture 2.14. Thygesen universal fetotome standardized by Götze

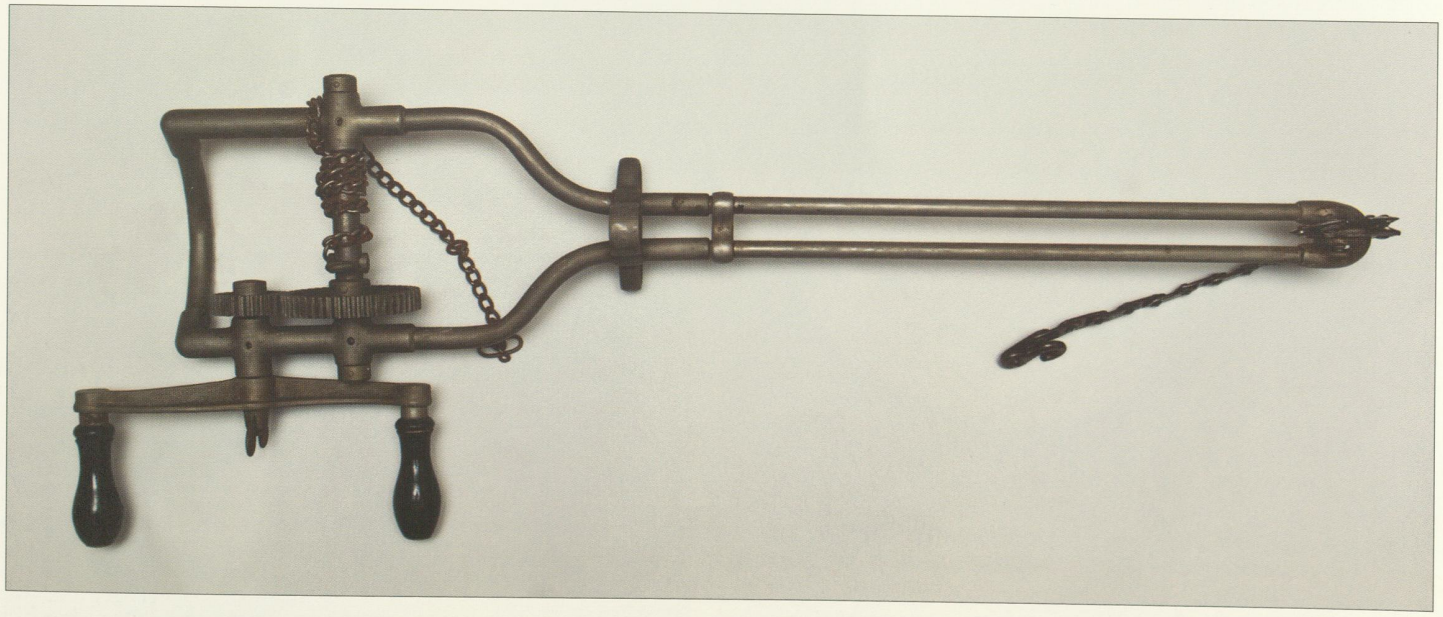
Slika 2.15. Becker-Schöttlerov vakufat za potkožno razaranje fetalne kralježnice ili zdjelice kako bi se trup ploda mogao kod embriotomije što više produljiti i na taj način smanjiti obujam

Picture 2.15. Becker-Schöttler vacufact for subcutaneous dissection of the foetal spine or pelvis to reduce the volume of the body of the young in fetotomy by making it as long as possible

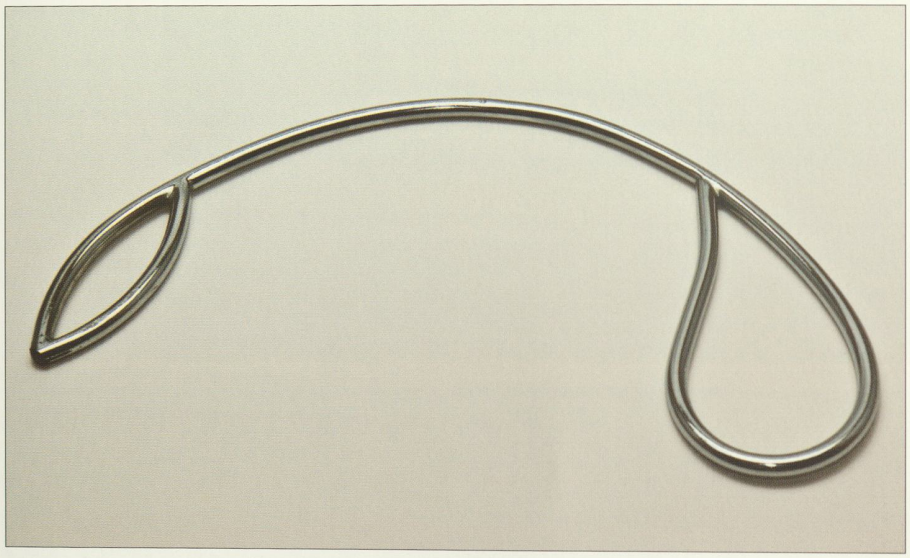
Slika 2.16. Harpunasti vodiljni štap za operacije vakufatom (slika 2.15.) u stražnjem položaju za rezanje koštane moždine

Picture 2.16. Harpoon like guide stick for use with the vacufact (Picture 2.15.) in the rear position for cutting the bone marrow

Slika 2.17. Maschova pila - dio Pflanzova embriotoma
Picture 2.17. Masch's saw - part of Pflanz's fetotome



Slika 2.18. Pflanzov embriotom koji radi na principu ekrazera, pa se s njim reže samo u produženju; ovom instrumentu pripada i Maschova pila (slika 2.17.)
Picture 2.18. Pflanz's fetotome which works on the principle of an ecraseur, and it is only used to cut in extension; this instrument includes the Masch saw (Picture 2.17.)



Slika 2.19. Sandov uvođač za embriotomsku pilu
Picture 2.19. Sand's threader for the fetotomy saw

Slika 2.20. Schrieverov uvođač za embriotomsku pilu za prebacivanje pile preko dijelova ploda koje treba odrezati
Picture 2.20. Schriever's threader for the fetotomy saw for transferring the saw to parts of the foetus which need to be cut off

Slika 2.21. Dvostruka Krey-Schötlerova kuka za izvlačenje odrezanih dijelova ploda

Picture 2.21. Double Krey-Schötler hook for withdrawing dissected parts of the foetus

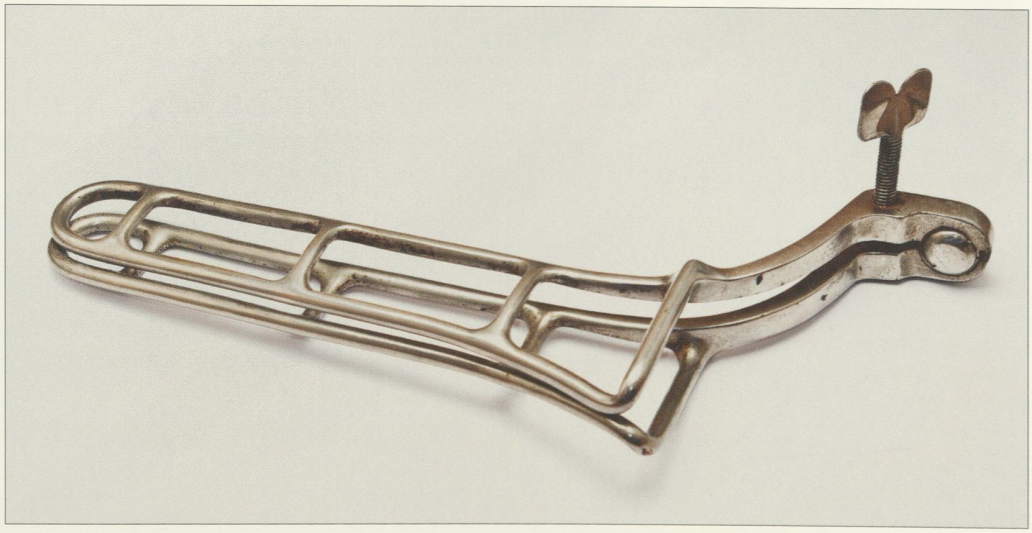
Instrumenti za vaginalni pregled

Upotrebljavaju se za pregled rodničkog predvorja, rodnice i stoščića maternicnog grljka. Na taj se način mogu ocijeniti fiziološka i patološka stanja na spomenutim djelovima spolnog sustava ali i dobiti uvid o stanju cijelog spolnog sustava.

Instruments for vaginal examination

These are used for examining the birth canal, the vagina and the cervix. In this way it is possible to assess the physiological and pathological status of these specific sex organs but also gain an insight into the condition of all the sex organs.

Slika 2.22. Cjevasti vaginalni spekulum
Picture 2.22. Tube vaginal speculum



Slika 2.23. Bischoff-Götzeov vaginalni spekulum
Picture 2.23. Bischoff-Götze vaginal speculum

Slika 2.24. Kellerov vaginalni spekulum
Picture 2.24. Keller vaginal speculum

Instrumenti za zatvaranje stidnice kod izvale rodnice u krave

Kod izvale rodnice u goveda, koja se najčešće javlja u visokoj gravidnosti, potrebno je rodnicu vratiti na mjesto i spriječiti ponovnu izvalu kako ne bi nastala infekcija.

Instruments for closing the vulvae after prolapse of the vagina in cows

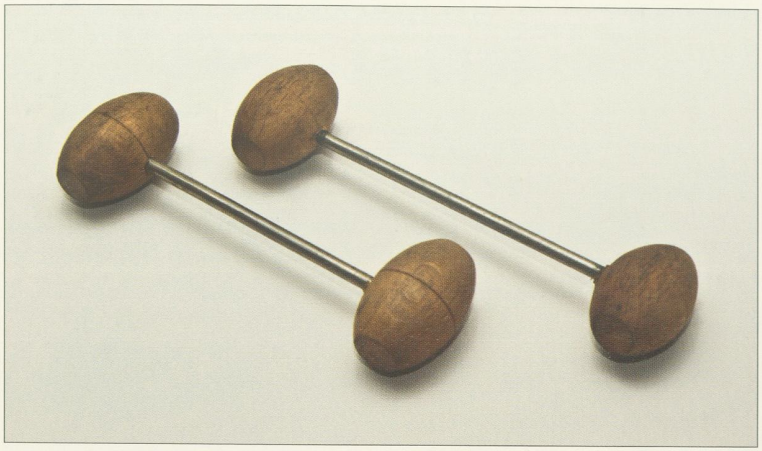
In the case of prolapsed vagina in cattle, which most commonly occurs in late pregnancy, it is necessary to return the vagina to its correct position and prevent a repeat prolapse so that infection does not occur.

BESKRVNE METODE ZATVARANJA STIDNICE

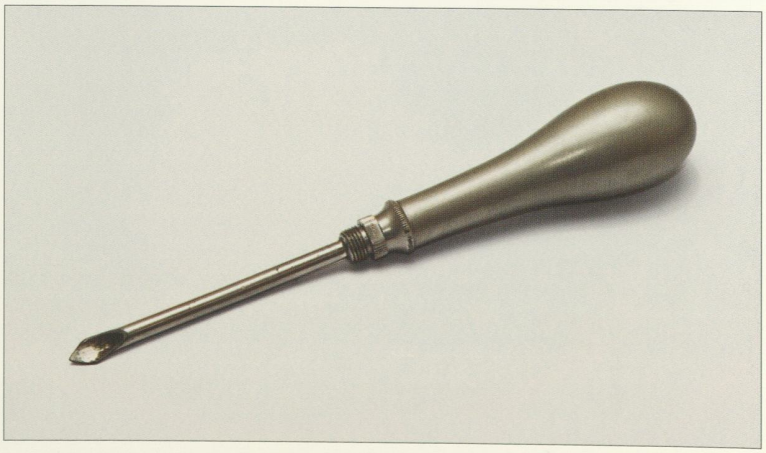
BLOODLESS METHOD OF CLOSING THE VULVAE

Slika 2.25. Lundov zatvarač za stidnicu za sprječavanje izvale rodnice u goveda

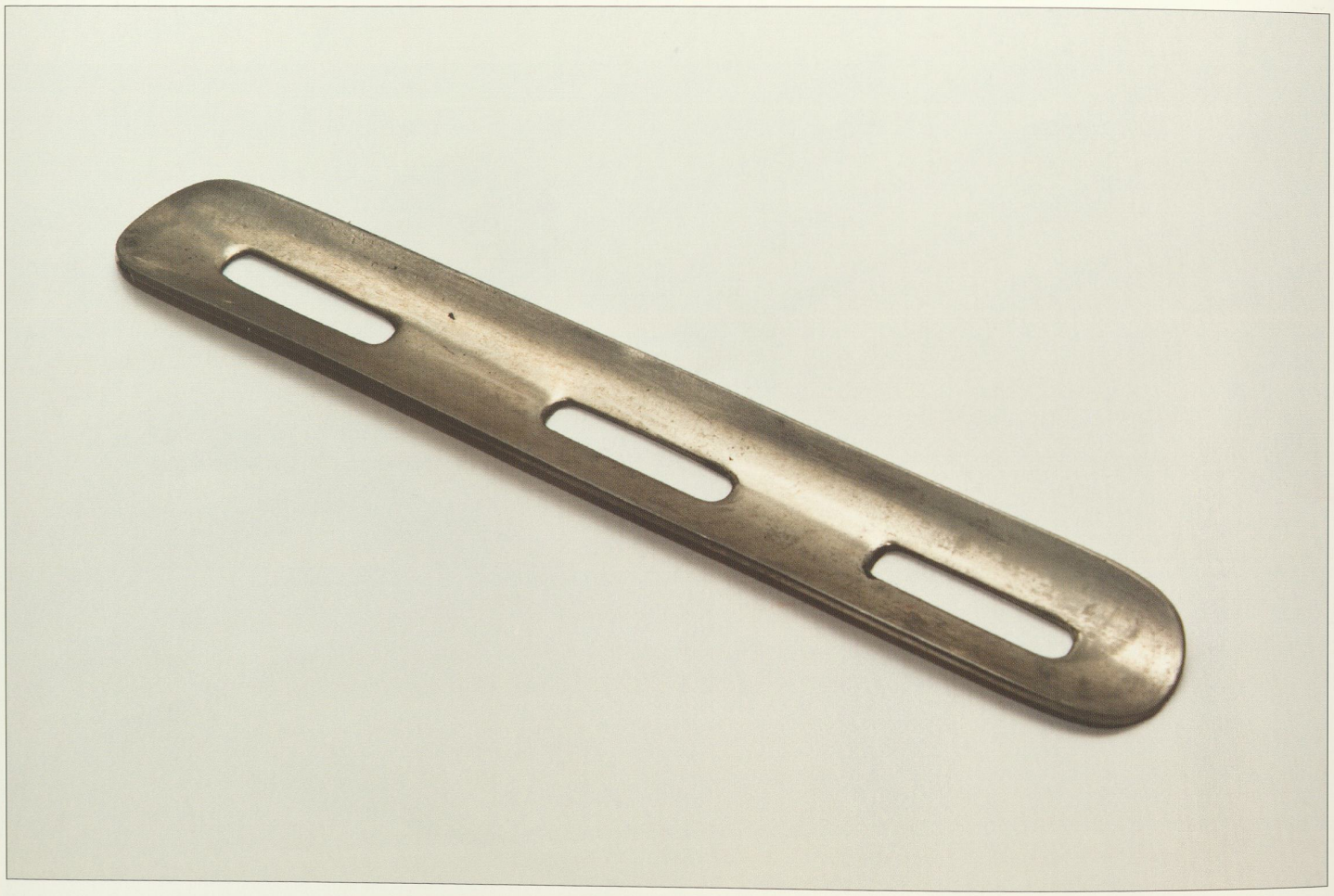
Picture 2.25. Lund's vulvae closer to prevent prolapsed vagina in cattle



Slika 2.26. Flessinijevi vaginalni zatvarači
Picture 2.26. Flessini vaginal closers



Slika 2.27. Flessinijeva igla za probadanje stidnih usana kako bi se mogli uvući zatvarači
Picture 2.27. Flessini's needle for piercing the vulvae to remove the closer



Slika 2.28. Flessinijev zatvarač za stidnicu - kovni podložak
Picture 2.28. Flessini closer for vulvae - iron base

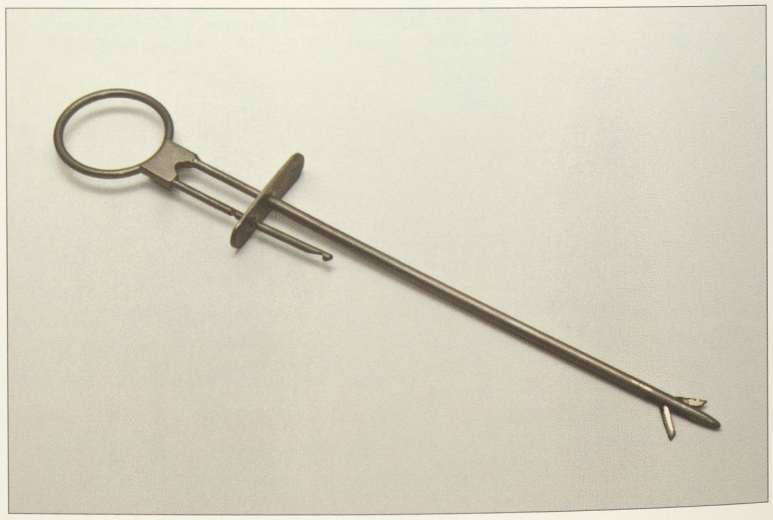
Instrumenti za pregled i operacije na vimenu

Pri pregledu vimena između ostaloga, mliječnim kateterom treba ispitati prohodnost sisnog kanala i sisnog dijela cisterne. Ako se dijagnosticira zapreka u prohodnosti, a najčešće su to membrane izvodi se operacija instrumentima za rezanje membrana u sisi.

Instruments for examination and surgery on udders

When examining the udders, amongst other things, it is necessary to test for any blockage of the teat duct and the teats of the udder cavity. If any blockage is found, which is most often caused by a membrane, an operation is performed using instruments for cutting the membrane inside the teat.

Slika 2.29. Hugova lanceta za rezanje membrana u sisi
Picture 2.29. Hugo's lancet for cutting membrane in teats



Slika 2.30. Danski skriveni nožić za operacije membrane u sisi
Picture 2.30. Danish concealed knife for surgical removal of membranes in teats

Slika 2.31. Ewersov zračni filtar za insuflaciju zraka u vime kod puerperalne pareze

Picture 2.31. Ewers air filter for pumping air into udders in cases of puerperal paresis

Slika 2.32. Mliječni kateter za ispitivanje prohodnosti sisnog dijela cisterne i za ispuštanje mlijeka iz vimena krave

Picture 2.32. Milk catheter to test for blockages in the teats and to release milk from the cow's udders

Instrumenti za ovariotomiju krava i kobila

Ovariotomija je operacija pri kojoj se uklanjaju jajnici radi medicinskih ili gospodarskih razloga. Pristup jajniku obavlja se uz pomoć instrumenata.

Instruments for ovariotomy in cows and mares

Ovariotomy is an operation in which the ovaries are removed for medical or economic reasons. Access to the ovaries is gained by use of instruments.

Slika 2.33. Rudolfov vaginalni perforator za bušenje ili probijanje rodnice u krava i kobila kao pripreme za ovariotomiju

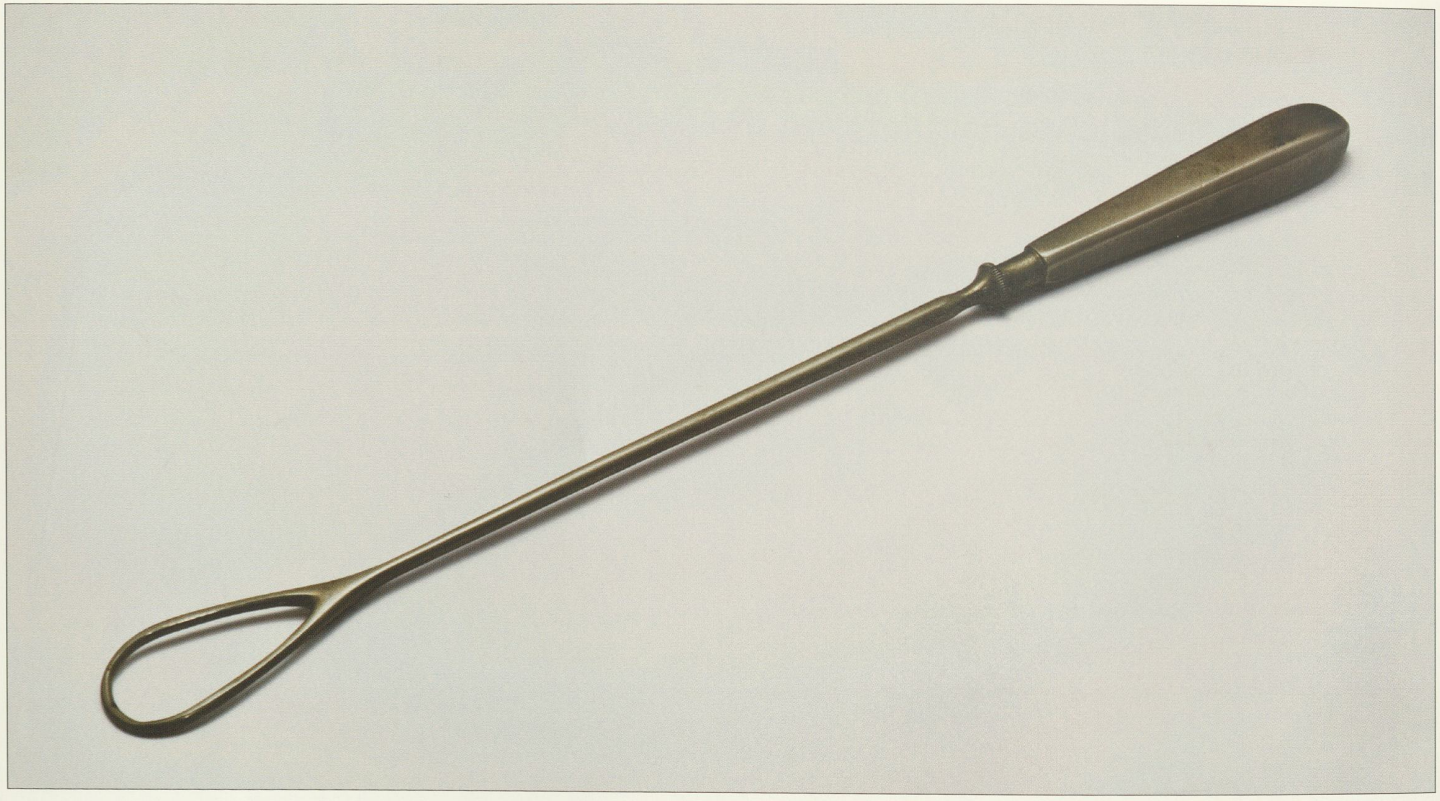
Picture 2.33. Rudolf's vaginal perforator for drilling or piercing the birthcanal in cows and mares in preparation for ovariotomy

Instrumenti za njegu mladunčadi

U prva tri dana poslije poroda postoji mogućnost pojave začepa rektuma koji se može spriječiti uporabom instrumenta.

Instruments for the care of young

In the first three days after birth, blockage of the rectum may occur, which may be prevented by using instruments.



Slika 2.34. Maschov mekonitorij za čišćenje rektuma ždrebeta, to jest ispražnjavanje mekonija

Picture 2.34. Masch's meconitory for clearing the rectum of foals, or extracting impacted meconium

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Veterinarski kirurški instrumenti

Kirurški instrumenti služe za obavljanje kirurških zahvata. Postoji osnovni kirurški set i instrumenti koji se dodaju osnovnom setu, a koriste se za operacijske zahvate u različitim regijama tijela. Uporaba kirurških instrumenata potječe od samih početaka razvoja humane i veterinarske medicine. Vrlo često se u humanoj i veterinarskoj medicini koriste isti ili slični instrumenti. No, u veterinarskoj medicini postoje specifični instrumenti kojima se koriste samo veterinarski kirurzi.

Veterinary surgical instruments

Surgical instruments serve in performing surgical procedures. There is a basic surgical kit and instruments which are added to the basic kit for use in surgical procedures on various areas of the body. The use of surgical instruments stems from the very beginnings of the development of human and veterinary medicine. Very often in human and veterinary medicine the same or similar instruments are used. However, in veterinary medicine there are specific instruments which are only used by veterinary surgeons.

Kirurški noževi

Najpoznatiji i najčešće korišten kirurški instrument je skalpel. Pripada u skupinu instrumenata koji čine osnovni kirurški instrumentarij. No, on je samo jedan od brojne skupine instrumenata poznatih kao kirurški noževi (bisturi, lancete, stileti, tenotomi, dezmotomi itd.). Anatomski skalpel koristi se za anatomsku sekciju kojom se prikazuju određeni organi. Njegova manuelna upotreba koristi trbuh i vrh noža, dok se kirurški skalpel u osnovi koristi tako da se reže samo trbuhom noža pod kutom od 45° tako da se držak noža postavi u dlan, a kažiprst je na tupoj strani, te se tako kontrolira snaga i položaj reza.

Skalpel može biti univerzalan instrument za pristup u sva tkiva. U praksi se koriste i specifični noževi i to samo za određena tkiva, jer osiguravaju bolju i sigurniju kvalitetu izvođenja kirurškog zahvata. Tenotom i dezmotom specifični su kirurški noževi koji se koriste za presijecanje tetiva i ligamenata. Nezamjenjivi su u određenim operacijskim zahvatima kao npr. kod operacije dorzalne luksacije patele. U tom operacijskom zahvatu podvlači se dugmasti tenotom ispod ravnog medijalnog ligamenta patele, te se neposredno iznad hvatišta ligamenta ispod platoa tibije vrši njegovo presijecanje. Upravo konstrukcija toga noža s dugmastim vrhom omogućuje siguran rad bez lediranja okolnih mekih česti (zglobna kapsula, krvne žile i živci) što bi se moglo kompromitirati ako bi taj vrh bio oštar poput onoga na skalpelu.

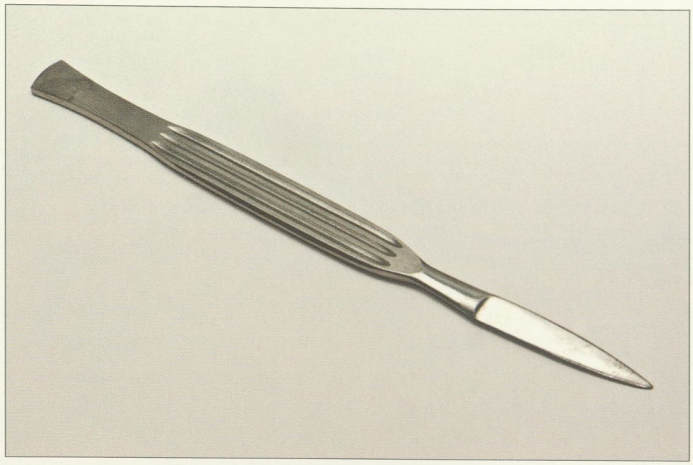
Surgical knives

The best known and most frequently used surgical instrument is the scalpel. It belongs to the group of instruments which form the basic surgical instruments. However it is only one of a large group of instruments known as surgical knives (cold scalpels, lancets, stilettos, tenotoms, desmotoms etc.). Anatomic scalpels are used for anatomic dissection to display certain organs. Their manual use involves the belly and tip of the knife, whilst surgical scalpels are basically used by cutting with only the belly of the knife at an angle of 45°, so that the handle of the knife is held in the palm and the index finger is laid along the blunt side, thereby controlling the force and position of the incision.

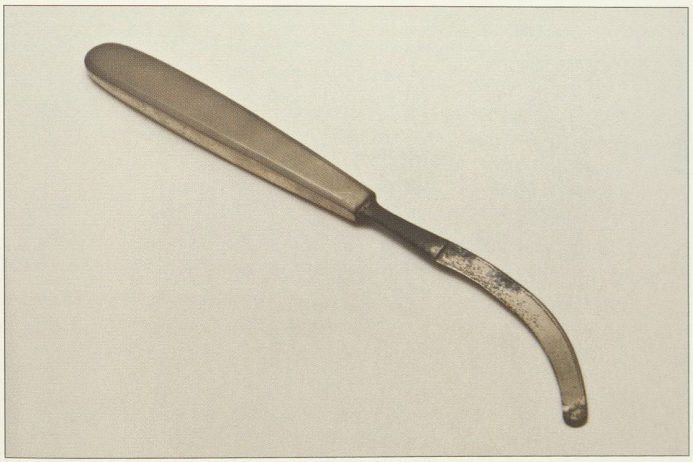
A scalpel may be a universal instrument for access to all tissue. In practice specific knives are used for certain types of tissue as they ensure better and safer quality in performing the surgery. Tenotoms and desmotoms are specific surgical knives used for cutting tendons and ligaments. They are irreplaceable in certain surgical procedures, such as for example in operations on a dorsal luxating patella. In this surgery a long tenotom is drawn below the straight medial ligament of the patella, and an incision is made immediately above the vertex of the ligament below the plateau of the tibia. Precisely the construction of this knife, with its long tip, makes it possible to work safely without damage the surrounding soft tissue (joint capsule, blood vessels and nerves), which could be compromised if the tip was as sharp as a scalpel.

Noževi za brijanje dlake unutar pripreme operacijskog polja nisu kirurški noževi. Svrstavaju se u tu skupinu instrumenata iz praktičnih razloga.
Puštanje krvi, kao metodu liječenja, koristili su stari Egipćani i starorimski veterinari, koji su smatrali da je to jedini pravi način uspostave ravnoteže između četiriju tjelesnih tekućina (žuta žuč, crna žuč, sluz i krv) odgovornih za zdravlje životinje. Ta metoda kao način liječenja zadržala se gotovo do danas, iako više ne na osnovi učenja o "četirima tekućinama", nego kao jedna od metoda u liječenju.

Knives used for shaving hair as preparation of the surgical field are not surgical knives. We have included them in this category of instruments for practical reasons.
Letting blood as a method of treatment has been used since Ancient Egypt, and especially by ancient Roman veterinarians who believed it was the only correct way to establish a balance between the four bodily fluids (yellow bile, black bile, phlegm and blood) responsible for the health of animals. This method of treatment continued almost to the present day, although it is no longer based on the teaching of the "four humours" but is one method of treatment.

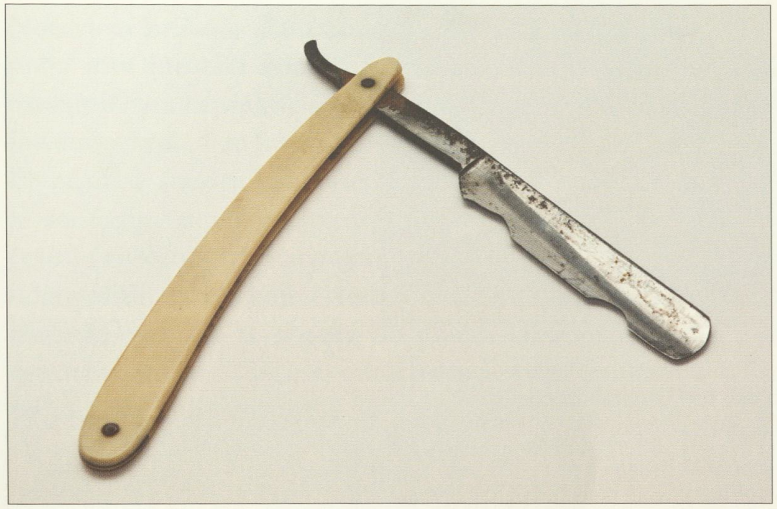


Slika 3.1. Anatomski skalpel, tzv. "engleski model"
Picture 3.1. Anatomical scalpel



Slika 3.2. Tenotom-dezmotom dugmasti kirurški nož za presijecanje tetiva i ligamenata
Picture 3.2. Tenotom-desmoton - surgical knife for cutting tetives and ligaments

Slika 3.3. Tenotom-dezmotom dugmasti sklopivi kirurški nož za presijecanje tetiva i ligamenata
Picture 3.3. Tenotom-desmotom - surgical folding knife for cutting tetives and ligaments



Slika 3.4. Sklopiva britva s utorima za promjenjivu britvicu za brijanje dlake u pripremi operacijskog polja

Picture 3.4. Folding razor with slots with variable razors for shaving hair in the surgical field

Slika 3.5. Britva za brijanje dlake u pripremi operacijskog polja

Picture 3.5. Razor for shaving hair in preparation of the surgery field

Slika 3.6. Noževi za brijanje dlake u pripremi operacijskog polja koji se koriste najčešće u svinja za brijanje dlake u gladnoj jami prije laparotomije

Picture 3.6. Knives for shaving hair in preparation of the surgical area, which are most often used in pigs for shaving the stomach pit before a laparotomy

Slika 3.7. Pribor za puštanje krvi konjima
Picture 3.7. Accessories for bloodletting in horses

Kirurški instrumenti za šivanje

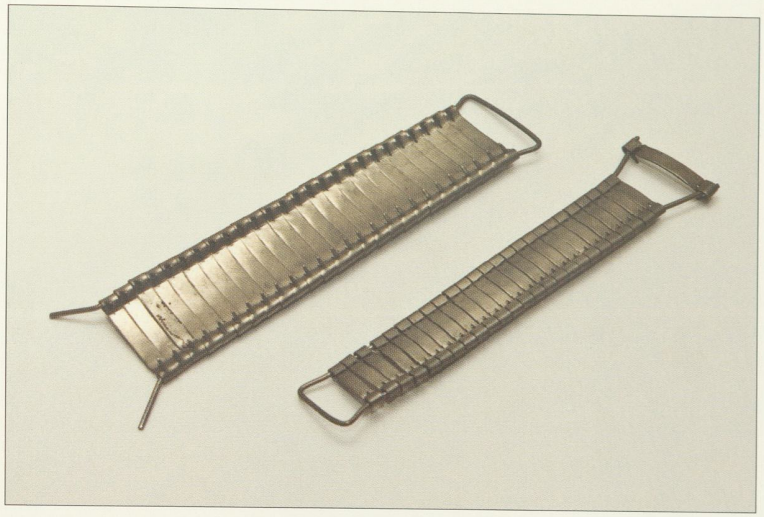
Sastavni dio osnovnog kirurškog instrumentarija čine iglodržači, igle za šivanje i materijal kojim rekonstruiramo određeno tkivo. Ovisno o vrsti tkiva i vrsti životinje koristit će se određeni iglodržač i igla. Iglodržač prema Ermoldu snažno drži iglu u za to priređenim utorima te omogućuje relativno lako šivanje i tvrde goveđe kože. U veterinarskoj praksi koristi se naziv "buldog iglodržač" jer snažno drži iglu u za to predviđenim utorima. Michelove kopče koriste se za adaptaciju kožnih rubova rane, a postavljaju se posebno konstruiranom Michelovom pincetom za postavljanje (na početku krakova su utori) i skidanje (vrh pincete kao papigin kljun) kopči.
Materijal za šivanje razlikovat će se ovisno o tome rekonstruira li se tkivo gdje se ne mogu ukloniti postavljeni šavovi nakon cijeljenja tkiva (resorptivni materijali) ili je to kožni šav koji je dostupan i može se ukloniti nakon cijeljenja kožne rane (neresorptivni materijal).
Specifična Deschampova tupa igla koristi se primarno za podvezivanje krvnih žila kao način sprječavanja intraoperacijskog krvarenja, no također se koristi za podvezivanje živaca pri izvođenju neurektomije.

Surgical instruments for suturing

An integral part of basic surgical instrument kits are needle holders, sewing needles and materials used for reconstruction of specific tissues. Depending on the type of tissue and type of animal, specific needle holders and needles are used. Needle holders, developed by Ermold, hold the needle strongly in specially formed slots and make sewing of even tough cattle skin relatively easy. In veterinary practice they are known as "bulldog needle holders" because they hold the needles tightly in the slots provided. A Michel clip is used to shape the skin on the edges of the wound and is placed and also removed using specially constructed Michel forceps (there are slots at the top of the arms and the tips of the forceps are shaped like a parrot's beak).
Material for sutures differs depending on whether the tissue is being reconstructed where sutures cannot be removed after healing (resorptive material) or they are skin sutures which are accessible and may be removed after healing of the skin wound (non-resorptive material).
The specific Deschamps blunt needle is primarily used for joining blood vessels in order to prevent intra-operative haemorrhage but it is also used for joining nerves in neuroctomy.

Slika 3.8. Iglodržač prema Ermoldu
Picture 3.8. Needle holder by Ermold

Slika 3.9. Iglodržači: prema Landgenbecku (lijevo) i prema Ermoldu (desno)
Picture 3.9. Needle holders by Landgenbeck(left) and Ermold (right)

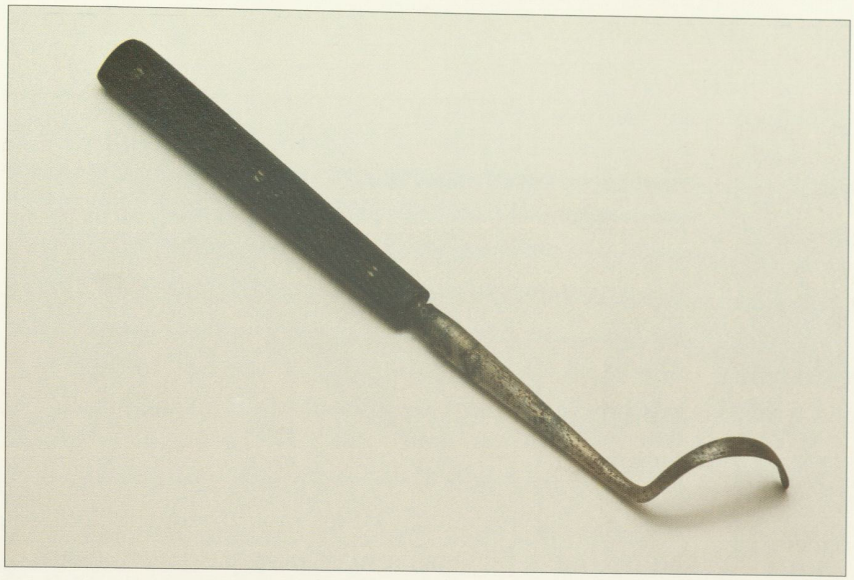


Slika 3.10. Michelove kopče
Picture 3.10. Michel clips

Slika 3.11. Michelova pinceta
Picture 3.11. Michel forceps

Slika 3.12. Igle za šivanje kože koje se koriste bez upotrebe iglodržača

Picture 3.12. Needles for cutting skin using without needle holder



Slika 3.13. Deschampova tupa igla
Picture 3.13. Deschamp blunt needle

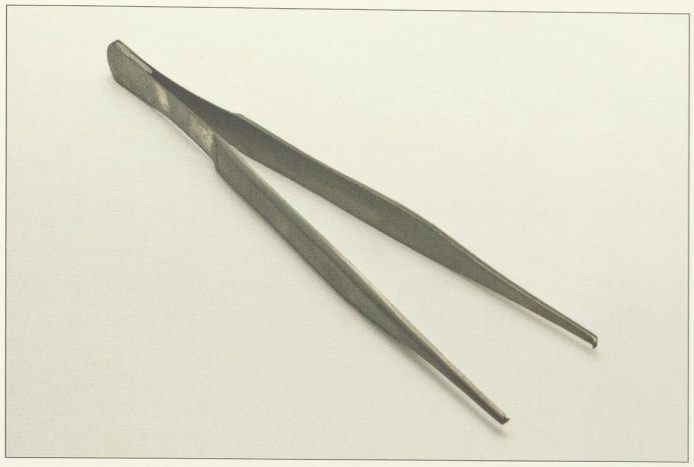
Slika 3.14. Kirurški laneni konac koji je bio u upotrebi početkom 20. stoljeća
Picture 3.14. Surgical linen fibre used at beginning of 20th century

Kirurški instrumenti za prihvaćanje raznih tkiva

Pinceta kirurška i anatomska, te hemostatička štipaljka prema Peanu i Kocheru dio su osnovnog kirurškog seta. Izgled i namjena kirurške pincete zadržani su od davnina do danas. Na njoj se razlikuju dva elastično spojena kraka, koja nakon međusobnog približavanja pritiskom prstiju omogućavaju da se na vrhovima krakova, postavljenim zubom na jednom kraku i odgovarajućim utorom na drugom kraku, sigurno prihvati željeno tkivo.
Instrument nazvan "pean" danas je neizostavni dio osnovnog kirurškog seta. Čine ga dva kraka međusobno križno spojena, a vrhovi završavaju kao anatomska pinceta tako da su samo izbrazdani plitkim utorima (time se sprečava jače lediranje tkiva), a međusobno se krakovi fiksiraju spajanjem, pri tome je između otvora za prste, kojima se drži instrument i njime tako rukuje, postavljen osigurač, koji drži instrument učvršćen na postavljenom tkivu i nakon ispuštanja instrumenta iz ruku operatera.
Operacijske kuke nisu dijelovi osnovnog instrumentarija, no svakako su neizostavni dio seta kada je nužno osigurati dobru preglednost operacijskog polja, osobito ako se radi u dubini tjelesnih šupljina ili se rekonstruira određeno tkivo koje je prekriveno nekim drugim strukturama. Oštre kuke omogućavaju čvrsto razdvajanje rubova kožne rane i time pristup u dubinu rane operateru, a one druge imaju raznovrsnu primjenu u svim slučajevima kada je nužno što manje lediranje rubova rane pri kirurškom operacijskom zahvatu.

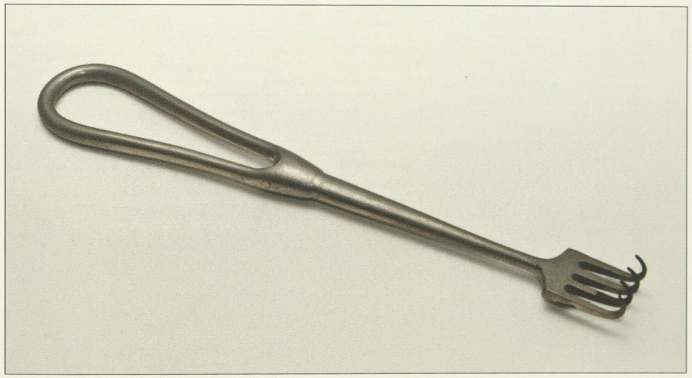
Surgical instruments for holding various types of tissue

Surgical and anatomical forceps and haemostatic forceps by Pean and Kocher are part of the basic surgical kit. The appearance and purpose of surgical forceps have remained the same from ancient times to the present, so that they consist of two elastically joined arms, which, when brought together by pressure by the fingers, allow the tooth on the end of one arm and the appropriate slot on the end of the other arm to grasp the desired tissue.
The instrument known as the "Pean" is today a vital part of the basic surgical kit. It consists of two arms joined in a cross, and the tips end as anatomical forceps, so that they are rutted with shallow slots (whereby increased damage to the tissue is prevented) and the arms of the forceps are fixed by joining them using a safety device placed between the opening for the fingers used to hold and manipulate the instrument. Thus the instrument is fixed on the tissue even if the operator releases it from his hands.
Surgical hooks are not part of the basic instrument kit, but they are certainly a vital part of it when it is necessary to ensure good visibility of the surgical field, especially when it is deep inside the body cavity, or during reconstruction of certain tissue concealed by some other structures. Sharp hooks make it possible to separate sharply the edges of a skin wound and thereby give the operator access into the depth of the wound, and the others have a variety of applications in all cases where it is necessary to avoid injury the edges of the wound in surgical procedures.

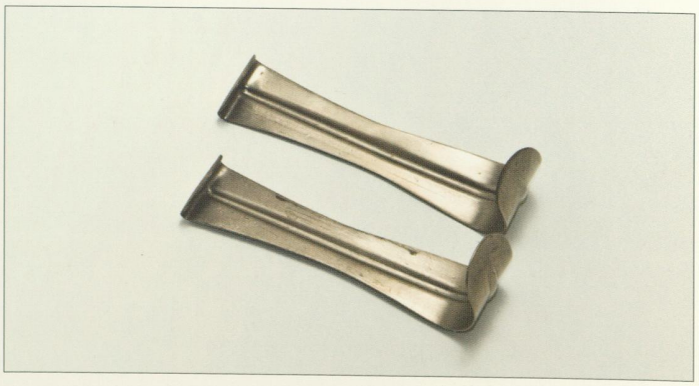


Slika 3.15. Pinceta kirurška
Picture 3.15. Surgical forceps

Slika 3.16. Hemostatička štipaljka prema Peanu
Picture 3.16. Haemostatic forceps by Pean



Slika 3.17. Četverozuba oštra kuka za rane
Picture 3.17. Four toothed sharp hook for wounds



Slika 3.18. Operacijske kuke
Picture 3.18. Surgical hooks

Tvornički pripremljeni kirurški setovi

Proizvođači kirurških instrumenata su nekada kao i danas izrađivali setove instrumenata za izvođenje osnovnih dijagnostičkih i operacijskih zahvata. Na jednom od takovih setova vidljivi su:

- ravna tupa sonda,
- perkusioni čekić za perkusiju kopita (perkusijom ispitujemo bolnost na istim mjestima kao i kod palpacije kopitnim kliještima u dijagnostici hromosti konja; moguća dijagnostika na osnovi promjene perkusionog zvuka kod bolesti kao što su šuplji i odvojeni zid kopita),
- podmetač za šivanje peritoneuma,
- sonda s oštrim vrhom,
- kirurški nož.

Factory made surgical kits

Manufacturers of surgical instruments at one time, and today, produced sets of instruments for performing basic diagnostic and surgical procedures. In one such set we find:

- a straight, blunt probe,
- a percussion hammer for percussion of hooves (by means of percussion we test health in the same places as by palpitation of hooves by forceps in the diagnostics of lameness in horses; diagnosis is possible on the basis of the changes in the percussive sound in diseases such as hollow or separated wall of the hoof),
- a pad for sewing the peritoneum,
- a sharp tipped probe,
- a surgical knife.

Slika 3.19. Nekadašnji veterinarski kirurški set
Picture 3.19. Traditional veterinary surgical equipment

Slika 3.20. Preostali dijelovi nekadašnjeg veterinarskog kirurškog seta

Picture 3.20. Remaining parts of old veterinary surgical equipment

Instrumenti za kastraciju muških domaćih životinja

Kastracija muških domaćih životinja jedan je od najčešćih veterinarskih kirurških zahvata. Taj se zahvat izvodi od davnih vremena, a predstavlja uklanjanje muških spolnih gonada. Razlozi zbog kojih se muške domaće životinje kastriraju mogu biti gospodarske ili medicinske naravi. Kastracija muških domaćih životinja izvodi se kao tzv. "krvna" i "beskrvna" metoda. Krvna metoda je danas uobičajeni veterinarski zahvat na svim domaćim muškim životinjama, a uglavnom se izvodi upotrebom različitih vrsta emaskulatora, kojima se presijeca sjemensko uže.

Međusobno se razlikuju ovisno o tome koliko ima ploha "gnječenja". Tako se kod Serra kliješta na dijelu kliješta kojim odsijecamo sjemensko uže razlikuju tri plohe gnječenja i jedna ploha rezanja. Na taj je način gnječenjem izvedeno "ligiranje" krvnih žila u sjemenovodu, a ploha rezanja koja se uvijek postavi periferno odsijeca dio sjemenskog užeta koji se veže na testis. I taj instrument na kraju krakova ima osigurač kojim se kliješta učvršćuju u poziciji presijecanja sjemenovoda i tamo zadrže 3-5 minuta kako bi se spriječilo eventualno poslijekastracijsko krvarenje.

Prstenasti emaskulator ima samo jednu plohu rezanja i jednu plohu gnječenja, pa se zato koristi samo za kastraciju odojaka i kastraciju krmača.

Instruments for castration of male domestic animals

Castration of male domestic animals is one of the most common veterinary surgical procedures. This procedure has been performed since ancient times and involves the removal of the male sexual gonads. The reasons why male domestic animals are castrated may be economic or medical. Castration of male domestic animals is performed by what are known as the "bloody" or the "bloodless" methods. The bloody method is today a normal veterinary procedure on all male domestic animals, and it is mainly performed using various forms of emasculators, used to cut the vas deferens. These "crushers" differ from each other according to how many surfaces they have. A Serra emasculator, in the part used to cut the vas deferens, has three crushing surfaces and one for cutting. In this way the blood vessels in the sperm ducts are cut off by crushing and the cutting surface, which is always set to the side, cuts the part of the vas deferens attached to the testicles. This instrument also has a safety device on the end of its arms to fix it in position whilst cutting the vas deferens and hold it for 3-5 minutes to prevent possible post-castration haemorrhage.

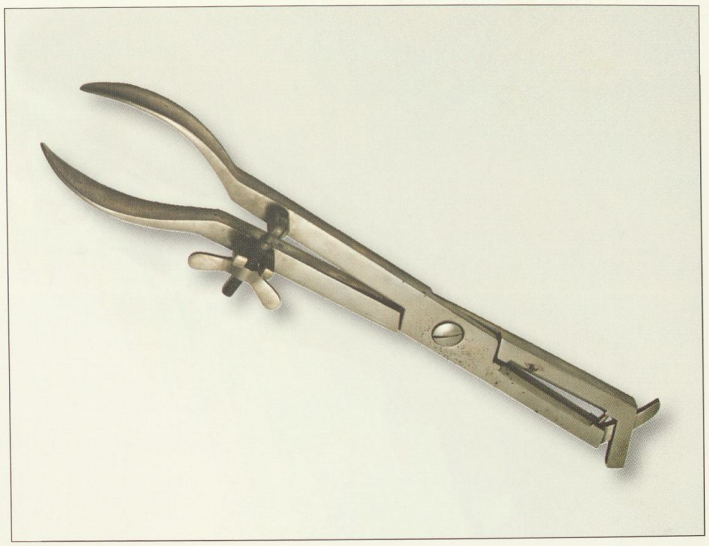
A ring emasculator has only one cutting surface and one crushing surface and it is therefore used to emasculate sucking pigs and for castrating sows.

Beskrvna metoda kastracije danas je veterinarski zahvat dopušten jedino na muškim preživačima, a izvodi se specifičnim Burdizzovim kliještima. Nekada se ova metoda izvodila i na pastusima a koristili su se različiti modeli drvenih škripaca. U njih se postavljalo sjemensko uže, a posebnim kliještima pritisnuti su škripci i tako se izazvala hemostaza, a posljedično tome atrofija testisa i konačno njihovo propadanje, čime je izvedena kastracija. Tu su metodu kastracije veterinari napustili no u našim krajevima vrlo često su je izvodili nadriveterinari.

The bloodless method of castration is a veterinary procedure allowed today only in male ruminant and it is performed by the specific Burdizzo pliers. At one time this method was used in stallions and various forms of wooden clamps were used. The vas deferens was placed inside them and special pliers pressed the clamps causing haemostasis and therefore atrophy of the testicles and finally their destruction, whereby the castration was performed. Veterinarians abandoned this form of castration, but in this region it was very frequently performed by pseudo-veterinarians.

Slika 3.21. Serra kliješta za kastraciju pastuha
Picture 3.21. Serra jaws for stallion castration

Slika 3.22. Emaskulatori prstenasti
Picture 3.22. Ring emasculators

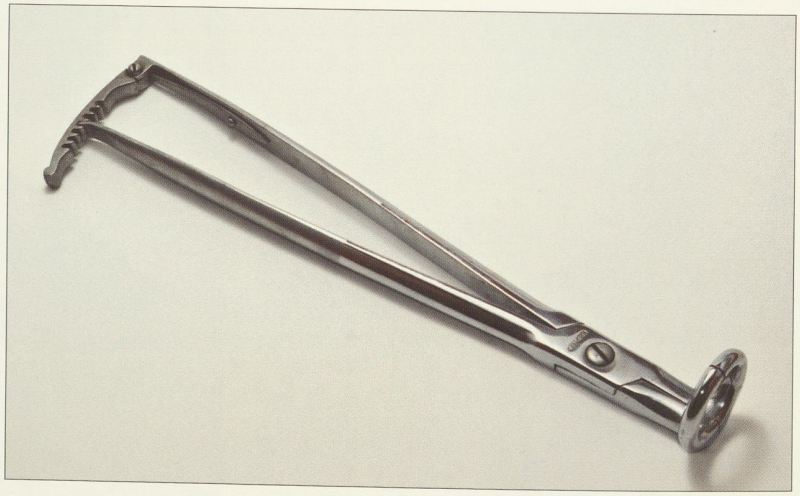


Slika 3.23. Kliješta za kastraciju
Picture 3.23. Emasculator - castration pliers

Slika 3.24. Nož za kastraciju, ili nož za presijecanje sjemenovoda
Picture 3.24. Knife for castration, used to intersect the vas deferens

Slika 3.25. Drveni škripci
Picture 3.25. Wooden clamps

Slika 3.26. Kliješta za pritiskanje škripaca
Picture 3.26. Pliers to press clamp



Slika 3.27. Kliješta za stezanje drvenih škripaca na sjemenovodu s osiguračem
Picture 3.27. Pliers to press wooden clamp on vas deferens with protector

Slika 3.28. Drveni škripci kojima su se koristili nadriveterinari
Picture 3.28. Wooden clamp used by pseudo - veterinarians

Pribor i instrumenti koji se upotrebljavaju u onihologiji

Dobro je poznata uzrečica "da konj vrijedi onoliko koliko vrijede njegova kopita i oči". Zato ne čudi što je veterinarima oduvijek bilo važno poznavati bolesti kopita, tako da se taj dio veterinarske kirurgije izdvojio kao posebna cjelina poznata kao onihologija.
Za potpun uvid u stanje kopita s tabanske strane nužno ga je očistiti od sve nečistoće kako bi se mogli točno procijeniti anatomski dijelovi kopita i njihova cjelovitost. U tu se svrhu koristi čistač kopita. Osim metalnih mogući su i drveni čistači kopita. Koristili su ih i nekada i danas veterinari i potkivači.
Neizostavan instrument u dijagnostici hromosti su kopitna kliješta. Vrhovima kopitnih kliješta pritišće se na točno određenim mjestima kopita kojima nastojimo potaknuti bol, koja je patognomonična za određenu vrstu bolesti kopita ili papka upravo na mjestu pritiska. Tako npr. za kopito postoji točno određen redoslijed i mjesto pritiska koji se izvode pri ovoj dijagnostičkoj metodi posredne palpacije.
Specifičnog lovorastog oblika su noževi za izvođenje posebnih operacijskih zahvata na mekim dijelovima kopita pri čemu mogu biti jednostrano ili obostrano oštri.

Equipment and instruments used in care of hooves

There is a well-known saying which says, "A horse is worth as much as his hooves and eyes", so it is no wonder that for veterinarians it has always been important to know about diseases of the hooves, so this part of veterinary surgery became separated as a separate branch known as onychology.
For complete insight into the condition of the hooves from the under side, it is necessary to clean them from all impurities to make it possible to assess the anatomic parts and their completeness precisely. For this purpose a hoof cleaner is used. Apart from those made of metal it is also possible to use wooden hoof cleaners. They were used before and they are still used today by veterinarians and blacksmiths.
A vital instrument in diagnosing lameness is a hoof tester (forceps). The points of the tester are pressed on precisely locations on the hoof whereby we attempt to arouse pain which is pathognomonic for a certain type of disease of the hoof or foot precisely at the location of pressure. So for example, for the hoof there is a precisely defined order and location for exerting pressure, which is performed when using this diagnostic method of direct palpitation.
Knives for undertaking special surgical procedures on the soft part of the hoof are of a specific laurel leaf shape, where they may be sharp on both sides or only on one.

Osim pojedinačnih instrumenata upotrebljenih za onihološke operacije, proizvođači instrumenata nudili su i već gotove setove za jednostavnije zahvate na kopitu (sadržavao je oštru žljebastu sondu, kopitni nož lijevi, kopitni nož desni, drveni držač - nosač spomenutih instrumenata).

Apart from specific instruments used for operations on hooves, the instrument manufacturers have also offered sets already made up for more simple procedures on the hooves (they contained a sharp cannellated probe, a hoof knife (left), hoof knife (right) and a wooden holder for these instruments).

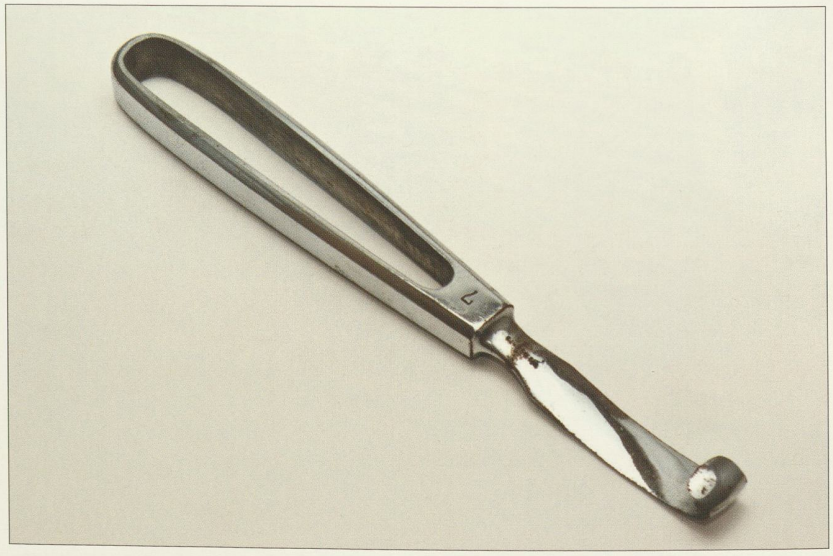
Slika 3.29. Metalni čistač kopita
Picture 3.29. Metal hooves cleaner

Slika 3.30. Kopitna kliješta za pretragu i dijagnostiku hromosti konja i goveda
Picture 3.30. Hoof tester for inspection and lameness diagnostic for horses and cattle

Slika 3.31. Kopitni noževi za obradu rožine kopita konja i papaka goveda
Picture 3.31. Hoof knifes for hoof trimming in horses and cattle

Slika 3.32. Lovorasti nož polusavijeni
Picture 3.32. Semi-curved knife for removing lateral cartilage in operation for cartilaginous quittor

Slika 3.33. Lovorasti nož ravni
Picture 3.33. Double-edged flat knife



Slika 3.34. Kopitni nož obostrano oštar
Picture 3.34. Hoof knife double-edged

Slika 3.35. Pribor za jednostavniju kiruršku obradu kopita
Picture 3.35. Equipment for basic surgical hoof processing

Slika 3.36. Kliješta za postavljanje metalne kopče pri liječenju rascjepa rožine kopita

Picture 3.36. Forceps for inserting metal clips when treating split hooves

Instrumenti u veterinarskoj stomatologiji

U veterinarskoj stomatologiji velikih životinja uglavnom se radi o zahvatima na zubima u konja. Veličina životinje i anatomske specifičnosti zahtjevale su razvoj instrumenata kojima se može obaviti ekstrakcija zuba i određene korekcije na zubima. U slučajevima kao što je primjerice oštro zubalo u konja, nužno je ukloniti oštre dijelove zuba, kako bi mu omogućili nesmetano žvakanje hrane, a to se radi raspom.

Instruments in veterinary dentistry

Veterinary dentistry in large animals mainly consists of procedures on horses' teeth. The size of the animals and their anatomic characteristics have led to the development of instruments to make it possible to extract teeth and to perform certain corrections on the teeth. In cases of sharp teeth, for example, it is necessary to remove the sharp parts of the teeth in horses to enable them to chew their food unhindered, and this is done with a rasp.

Slika 3.37. Zubarska kliješta za velike životinje
Picture 3.37. Dental forceps for large animals

Slika 3.38. Zubarske škare za presijecanje predugih zubiju u konja
Picture 3.38. Dental scissors for cutting too long teeth in horses

Slika 3.39. Zubarska kliješta za ekstrakciju zuba u konja
Picture 3.39. Dental forceps for tooth extraction in horses

Slika 3.40. Zubarska kliješta za ekstrakciju mliječnih zuba u konja
Picture 3.40. Dental forceps for temporary molars

Slika 3.41. Rašpa za konjske zube
Picture 3.41. Rasp for horse teeth

Oftalmološki instrumenti

Prvi dostupni podaci o bolestima očiju u pasa i goveda potječu još iz vremena starih Egipćana. Prva istraživanja pozadine oka potječu iz 18. stoljeća, a vežu se uz ime češkog fiziologa Johanesa Purkinjea (1787.-1869.), koji je promatrao unutrašnjost oka pomoću lupe i zrcala. Od 1850. godine, kada je njemački fizičar i matematičar inženjer Hermann Ludwig Ferdinand von Helmholtz izumio prvi oftalmoskop počinje pravi razvoj oftalmologije, osobito u veterinarskoj medicini.

Ophthalmic instruments

The first available data on eye ailments in dogs and cattle date back to the time of the ancient Egyptians. The first research into the back of the eye dates from the 18th century and it is connected to the name of the Czech physiologist Johannes Purkinje (1787-1869) who observed the interior of the eye using a magnifying glass and a mirror. From 1850 when the German physicist and mathematician, engineer Herman Ludwig Ferdinand von Helmholtz invented the first ophthalmoscope, the true development of ophthalmology began, especially in veterinary medicine.

Slika 3.42. Helmholtzovo očno zrcalo
Picture 3.42. Helmholtz eye speculum

Slika 3.43. Lupa i očno zrcalo za dijagnostiku očnih bolesti
Picture 3.43. Lens and eye speculum for ophthalmological diagnostics

Instrumenti za izvođenje operacijskih i ostalih zahvata u abdominalnoj kirurgiji

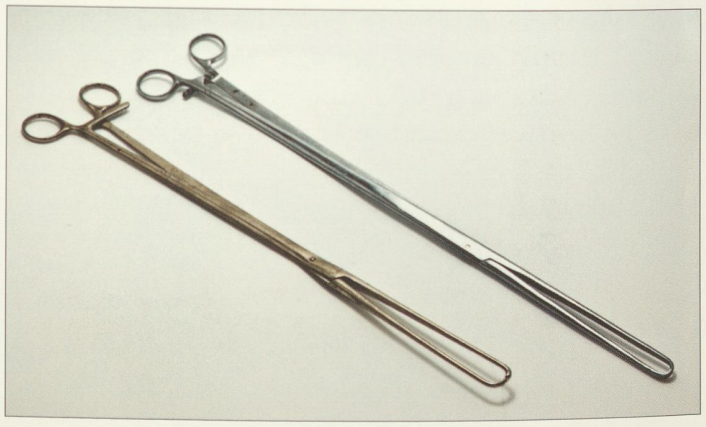
Specifičan kirurški zahvat u veterinarskoj medicini je troakiranje buraga goveda. Kao hitna intervencija u slučajevima timpanije kada nema vremena (zbog akutnosti procesa) za operaciju (laparoruminotomiju) i danas se koristi troakiranje buraga kao način liječenja. Pribor za troakiranje buraga goveda sastoji se od troakara (stileta) i kanile. Uobičajeno je da kanila za taj zahvat na govedu ima promjer od 1-1,5 cm. U lijevoj gladnoj jami vidljiva je polukuglasta izbočina i upravo na toj izbočini, birajući najvišu poziciju između zadnjeg rebra i bočne kvrge za širinu dlana od poprečnih trnastih izdanaka kralješaka, nakon brijanja i dezinfekcije, usmjerimo troakar prema desnom laktu i zabodemo čitavom dužinom. Nakon toga učvršćujući lijevom rukom kanilu stilet pažljivo izvučemo van. Kanilu je moguće ostaviti i nekoliko dana ako timpanija nije prestala. Pri vađenju kanile obvezno se postavlja stilet u kanilu i tada se izvlači cijeli troakar.

Instruments for performing surgical and other procedures in abdominal surgery

A specific surgical procedure in veterinary medicine is puncturing the rumen in cattle. As an urgent procedure in cases of tympany where we do not have time (due to the acute nature of the process) for an operation (laparuminotomy) still today we puncture the rumen as a form of treatment. The equipment for puncturing the rumen in cattle consists of a troakar-catheter and a cannula. It is usual for the cannula for this procedure in cattle to be 1-1.5 cm in diameter. A semi-spherical lump is visible in the left flank and, choosing the highest position between the last rib and the side lump in the width of a palm, from the transverse spinous process, after shaving and disinfection, we aim the stiletto precisely into that lump towards the right elbow and stab it in for its full length. After that by fixing a cannula with the left hand, we carefully remove the stiletto. It is possible to leave the cannula for several days if the tympany continues. When removing the cannula it is vital to place a stiletto into the cannula and then the entire troakar-catheter is removed.

Slika 3.44. Pribor za troakiranje buraga goveda
Picture 3.44. Equipment for puncturing the rumen in cattle

Slika 3.45. Hvataljka za strano tijelo u jednjaku
Picture 3.45. Forceps for removal of foreign body in oesophagus



Slika 3.46. Forcepsi za gastrointestinalnu kirurgiju
Picture 3.46. Forceps for gastrointestinal surgery

Slika 3.47. Allisov forceps za tkiva u gastrointestinalnoj kirurgiji

Picture 3.47. Allison forceps for tissues in gastrointestinal surgery

Kirurški instrumenti za ostale specifične zahvate

U slučajevima dišnih smetnji, kada je uzrok u proksimalnim dišnim putovima, pristupa se traheotomiji uz postavljanje trahaeotubusa koji omogućuje životinji normalno disanje. Traheotubus služi za izvođenje traheotomije "s gubitkom supstance". Pri izvođenju operacijskog zahvata osim presijecanja prstenastog ligamenta, resecira se i dio trahealnog prstena te tako dobije odgovarajući otvor za aplikaciju traheotubusa.
U slučajevima kada je potrebna hitna traheotomija i veterinar nema vremena za pripremu uobičajene operacije, jer je nužno odmah uspostaviti disanje, pristupa se tome zahvatu rabeći traheotom, kojim se otvara međutrahealni prostor.
Žljebasta sonda s oštrim vrhom je instrument obvezan uz osnovni kirurški set za operacijsko liječenje prsne kvrge u konja.
Kupiranje ušiju pasa bio je rutinski kozmetički zahvat veterinarskih kirurga. Pritom su se ovisno o "modi i kinološkim normama" koristili različiti oblici "ušnih klema". Njima se određivao oblik reza, a time i oblik kupirane uške. Taj kozmetički kirurški zahvat danas je zabranjen u smislu dobrobiti životinja.

Surgical instruments for other specific procedures

In cases of breathing difficulties, when the cause is in the proximal respiratory tract, a tracheotomy is performed by inserting a tracheotube through which the animal is enabled to breathe normally. A tracheotube is used to perform a tracheotomy "with loss of substance". In performing the surgical procedure, apart from cutting the ring ligament, an incision is also made in part of the tracheal ring so that a suitable opening is obtained for inserting the tracheotube.
In cases when an emergency tracheotomy is needed and the veterinarian does not have time to prepare for the usual operation, because it is necessary to re-establish breathing immediately, this procedure is performed using a tracheotomy whereby the inter-tracheal cavity is opened.
A ridged probe with a sharp point is a required instrument, alongside the basic surgical kit, for surgical treatment of chest lumps in horses.
Cropping the ears of dogs was a routine cosmetic procedure in veterinary surgery, whereby, depending on "fashion and cynological standards", various forms of ear cropping clamps were used. They determined the shape of the cut, and thereby the shape of the cropped ears. This cosmetic procedure is prohibited today for the welfare of the animal.

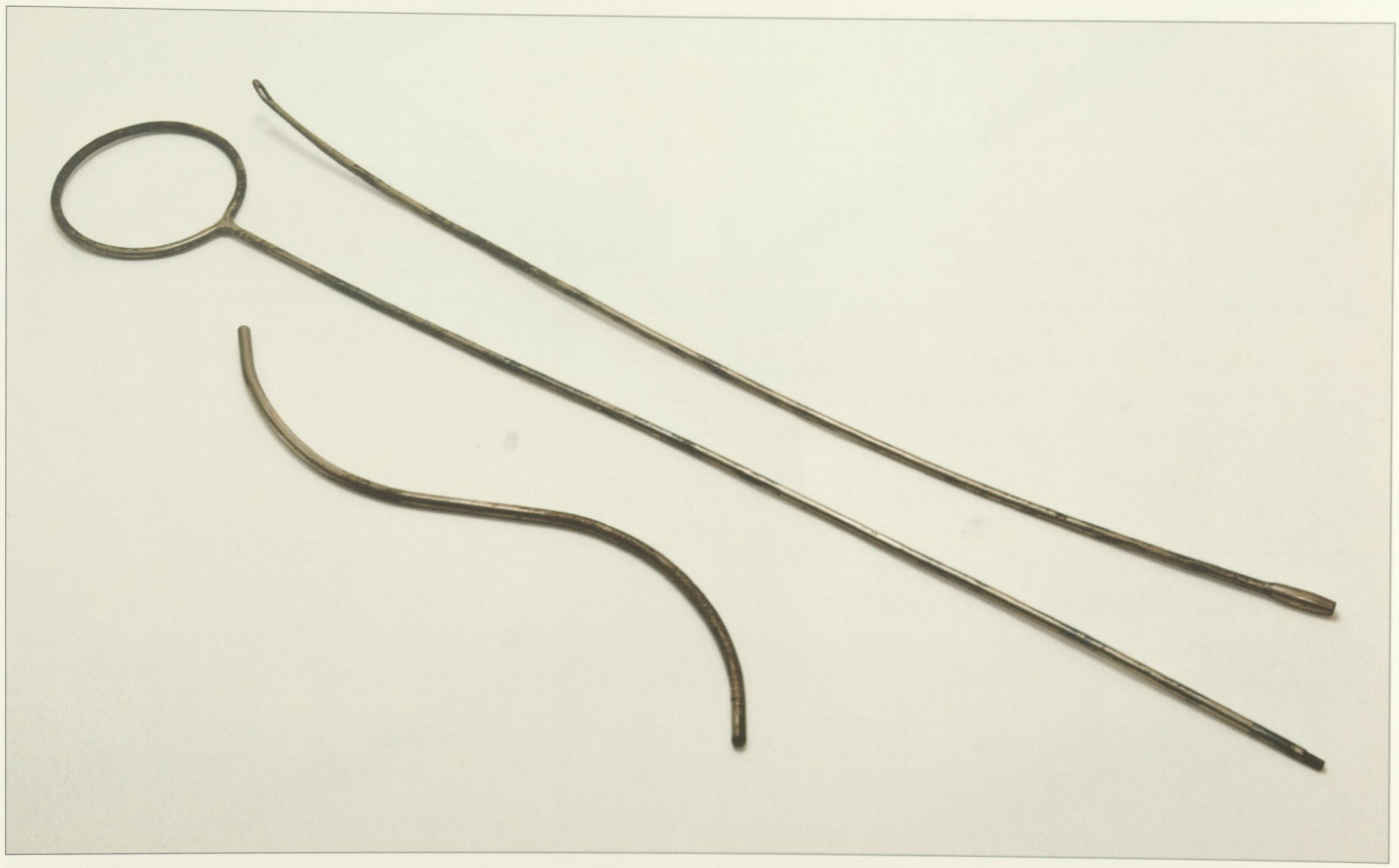
Termokauterizacija je specifičan zahvat u veterinarskoj medicini koji se koristi i danas.Tako je i upotreba termokautera s okruglom površinom pečata moguća kao metoda izbora pri zahvatu poznatom kao decornuatio tj. odrožnjavanje u mlade teladi. Osim toga paljenje je i danas jedna od metoda izbora u liječenju nekih kroničnih degenerativnih osteoartropatija kao što je škripac ili u slučajevima kroničnih upala tetiva konja.
Kliješta prema Franku koriste se za bušenje nosne pregrade prije postavljanja karike u bikova.

Thermo-cauterization is a truly specific procedure in veterinary medicine which is still used today. The use of a thermocauter with a round surface seal is possible as the method of choice in the procedure known as dehorning, that is, the removal of the horns from young calves. Moreover, cauterization is today one of the methods of choice in treating some chronic degenerative osteoarthropathies, such as cases of chronic infection of the tendons in horses.
Frank pliers are used for piercing the nostrils before placing a ring in bulls.

Slika 3.48. Traheotubusi
Picture 3.48. Traheotubes

Slika 3.49. Traheotom
Picture 3.49. Tracheotomy

Slika 3.50. Instrumenti za trepanaciju sinusa u velikih životinja
Picture 3.50. Instruments for sinus trepanation in large animals



Slika 3.51. "S" metalna sonda (lijevo), ravna metalna sonda (u sredini), kateter za kateterizaciju mokraćnog mjehura (desno)

Picture 3.51. "S" metal sound (left), flat metal sound (in the middle), catheter for vesica urinaria catheterisation (right)

Slika 3.52. Žljebaste sonde
Picture 3.52. Slotted probes

Slika 3.53. Kireta-oštra žlica
Picture 3.53. Currete

Slika 3.54. Špatula sa žlicom
Picture 3.54. Spatula with spoon

Slika 3.55. Ušna klema oblika "S"
Picture 3.55. Ear cropping clamp "S" form

Slika 3.56. Termokauter s okruglom površinom pečata
Picture 3.56. Thermocauter with round surface patent

Slika 3.57. Termokauter za točkasto paljenje
Picture 3.57. Thermocauter for superficial poin firing

Slika 3.58. Termokauter za obilježavanje životinja u obliku slova "T"
Picture 3.58. Thermocauter in "T" letter form for marking animals

Slika 3.59. Kliješta za tetoviranje
Picture 3.59. Tatoo pliers

Slika 3.60. Kliješta prema Franku za bušenje nosne pregrade
Picture 3.60. Frank pliers for septostomy

Pogovor

Veterinarski fakultet Sveučilišta u Zagrebu osnovan je znatno nakon većine istovjetnih fakulteta u Europi. Ipak znanstvena dostignuća i priznati rezultati uvrstili su ga među vodeće u svojem području.

Tijekom 90 godina postojanja i neprekinutog djelovanja rezultati i dostignuća na svim područjima rada veterinarske znanosti bili su i jesu na razini europskih mjerila vrsnoće. Značajno je da organizirani rad iz povijesti veterinarstva počinje osnutkom Fakulteta koji je u svom prvom nastavnom planu imao predmet Historija veterinarstva. Zavod za povijest i etiku veterinarstva tijekom vremena je više puta mijenjao naziv, ali su tu uvijek radili znanstvenici koji su izučavali povijest veterinarstva. Bio je i pokretač svih važnih akcija u hrvatskoj veterinarskoj povijesti i tako postao središte veterinarske povijesne znanosti ne samo u Hrvatskoj, nego i znatno šire.

Izložba organizirana u povodu 90. obljetnice Veterinarskog fakulteta Sveučilišta u Zagrebu daje pregled veterinarskih instrumenata, koji su izloženi u Muzeju za povijest veterinarstva na Veterinarskom fakultetu Sveučilišta u Zagrebu, a koji upućuju na razvoj veterinarske struke i znanosti te vrijednosti znanstvenih dostignuća.

prof. dr. sc. Vesna Vučevac Bajt

Afterword

The Faculty of Veterinary Medicine of the University of Zagreb was founded much later than most similar faculties in Europe. However its scientific achievements and recognized results have placed it amongst the leaders in its field.

Over its 90 years of existence and continuous work, its results and achievements in all areas of work in veterinary science have been and are on the level of European standards of excellence. It is significant that organized work in the area of the history of veterinary medicine began with the foundation of the Faculty, which included the subject of the History of Veterinary Medicine in its first teaching plan. The Department for History and Veterinary Ethics has changed its title many times over time, but scientists have always worked there who have studied and taught the history of veterinary medicine. It has also been the initiator of important activities in Croatian veterinary history and so become the centre of veterinary historical science not only in Croatia but in a much broader area.

The exhibition organized to mark the 90th anniversary of the Faculty of Veterinary Medicine of the University of Zagreb gives an overview of veterinary instruments exhibited in the Museum of the History of Veterinary Medicine at the Faculty of Veterinary Medicine of the University of Zagreb, and they show the development of the veterinary profession and science and the value of scientific achievements.

prof. dr. sc. Vesna Vučevac Bajt

Veterinarska visoka škola u Zagrebu ustrojena je na osnovu Uredbe od 31. kolovoza 1919., a ukazom kralja Aleksandra od 07. prosinca 1924. pretvorena je u Veterinarski fakultet Sveučilišta u Zagrebu.

Nakon godine 1990. provode se korijenite promjene u visokom školstvu i znanosti pa je u sklopu reforme Sveučilišta godine 1994. počela izvedba novoga nastavnog plana i programa na Veterinarskom fakultetu.

Na temelju prosudbe EAEVE-a (European Association of Establishments for Veterinary Education) tijekom godine 2002. Veterinarski fakultet uvršten je na popis pozitivno ocijenjenih europskih veterinarskih fakulteta. Obrazovno vijeće EAEVE-a i Federacija veterinara Europe prihvatili su izvješće o evaluaciji Veterinarskog fakulteta Sveučilišta u Zagrebu.

U skladu s tim Fakultet, kao punopravni član, razvija međunarodnu suradnju s veterinarskim fakultetima okupljenim u mrežu VetNEST (Veterinary Network of European Students and Staff Transfers).

The Veterinary School of Higher Education in Zagreb was established on the basis of an Ordinance of 31st August 1919, and by a decree of King Aleksandar of 7th December 1924 it was transformed into the Faculty of Veterinary Medicine of the University of Zagreb.

After 1990 thorough changes took place in higher education and science, and as part of those reforms of the University, in 1994 a new teaching plan and curriculum began to be implemented at the Veterinary Faculty.

On the basis of evaluation by EAEVE (the European Association of Establishments for Veterinary Education) in 2002 the Veterinary Faculty was included in the list of positively evaluated European veterinary faculties. The educational board of EAEVE and the Federation of Veterinarians of Europe accepted the report on the evaluation of the Veterinary Faculty of the University of Zagreb.

As a result, the Faculty, as a full member, is developing international cooperation with veterinary faculties collected in the VetNEST network (Veterinary Network of European Students and Staff Transfers).