

CHAPTER 17

DRUGS, DISEASES, AND DISSECTION

Objectives

Upon completion of this chapter, the reader should be able to

- Recognize, define, spell, and pronounce the terms associated with pharmacology and drugs used in various treatments
- Recognize, define, spell, and pronounce the terms associated with pathological procedures and processes
- Recognize, define, spell, and pronounce the terms associated with different types of surgery and the instruments used in surgery

PHARMACOLOGIC TERMS

Pharmacology (fahrm-ah-kohl-lō-jē) is the study of the nature, uses, and effects of drugs. Some drugs are dispensed only by a licensed professional, and other drugs are not. A **prescription** (prē-skrihp-shuhn) **drug** is a medication that may be purchased by prescription or from a licensed professional. An **over-the-counter** (ō-vər teh kount-ər) **drug** is a medication that may be purchased without a prescription. A **generic** (jehn-ār-ihck) **drug** is a medication not protected by a brand name or trademark. (It also is called a **nonproprietary drug**.)

Pharmacology

- **agonist** (ā-gohn-ihst) = substance that produces effect by binding to an appropriate receptor.
- **antagonist** (ahn-tā-gohn-ihst) = substance that inhibits a specific action by binding with a particular receptor instead of allowing the agonist to bind to the receptor.
- **antiserum** (ahn-tih-sēr-uhm) = serum containing specific antibodies extracted from a hyperimmunized animal, or an animal that has been infected with the microorganisms containing antigen.
- **antitoxin** (ahn-tih-tohcks-sihn) = specific antiserum aimed at a poison that contains a concentration of antibodies extracted from the serum or plasma of a healthy animal.
- **bacterin** (bahck-tār-ihn) = bacterial vaccine.
- **chelated** (kē-lā-tehd) = bound to and precipitated out of solution.
- **contraindication** (kohn-trah-ihn-dih-kā-shuhn) = recommendation not to use.
- **diffusion** (dih-fū-shuhn) = movement of solutes from an area of high concentration of particles to one of low concentration of particles (Figure 17-1).
- **dosage** (dō-sahj) = amount of medication based on units per weight of animal (such as 10 mg/lb and 2 mg/kg).
- **dosage interval** (dō-sahj ihn-tār-vahl) = time between administrations of a drug (such as bid or q12h).
- **dose** (dōs) = amount of medication measured (such as milligrams, milliliters, units, and grams).
- **drug** (druhɡ) = agent used to diagnose, prevent, or treat a disease.
- **efficacy** (ehf-ih-kah-sē) = extent to which a drug causes the intended effects; effectiveness.
- **endogenous** (ehn-dah-jehn-uhs) = originating within the body.
- **exogenous** (ehcks-ah-jehn-uhs) = originating outside the body.
- **hydrophilic** (hī-drō-fihl-ihck) = water-loving; ionized form.
- **hyperkalemia** (hī-pār-kā-lē-mē-ah) = excessive level of blood potassium.
- **hypernatremia** (hī-pār-nā-trē-mē-ah) = excessive level of blood sodium.
- **hypertonic** (hī-pār-tohn-ihck) **solution** = solution that has more particles than the solution or cell to which it is being compared. The tonicity of solutions usually is compared to blood cells (Figure 17-2).
- **hypokalemia** (hī-pō-kā-lē-mē-ah) = deficiency of blood potassium.
- **hyponatremia** (hī-pō-nā-trē-mē-ah) = deficiency of blood sodium.
- **hypotonic** (hī-pō-tohn-ihck) **solution** = solution that has fewer particles than the solution or cell to which it is being compared (Figure 17-2).

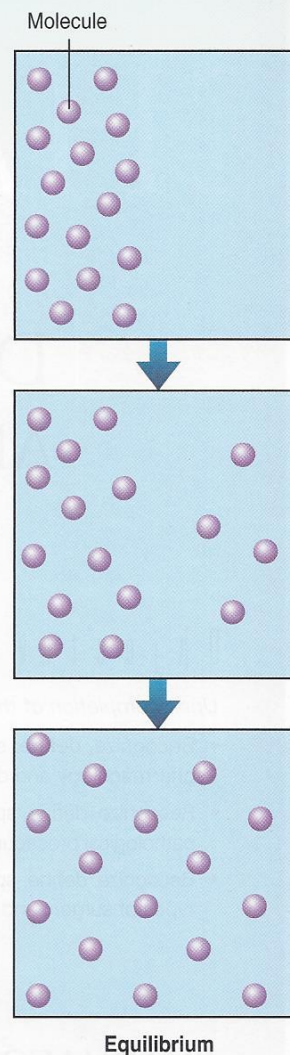


Figure 17-1 Diffusion is the random movement of molecules from an area of high concentration of particles to an area of low concentration of particles. Diffusion can occur in the presence or absence of a membrane.

- **hypovolemia** (hī-pō-vō-lē-mē-ah) = low circulating blood volume.
- **ionized** (ī-ohn-īzd) = electrically charged.
- **isotonic** (ī-sō-tohn-ihck) **solution** = solution that has equal particles to the solution or cell to which it is being compared (Figure 17-2).
- **lipophilic** (lih-pō-fihl-ihck) = fat-loving; nonionized form.
- **monovalent** (mohn-ō-vā-lehnt) = vaccine, antiserum, or antitoxin developed specifically for a single antigen or organism.
- **nonionized** (nohn-ī-ohn-īzd) = not charged electrically.
- **osmosis** (ohz-mō-sihs) = movement of water across a selectively permeable membrane along its concentration gradient (Figure 17-3).

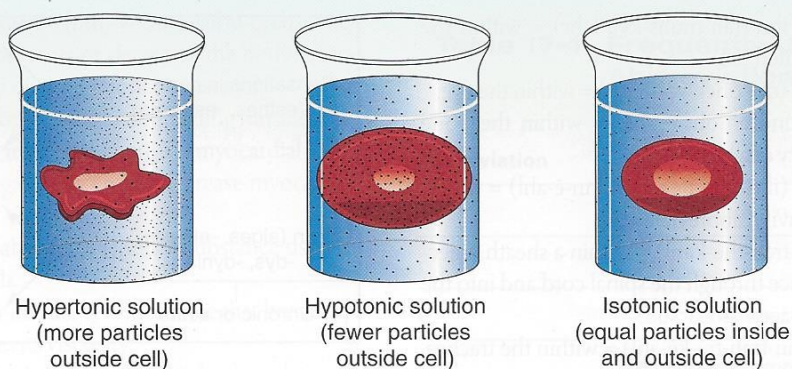


Figure 17-2 Solution tonicity.

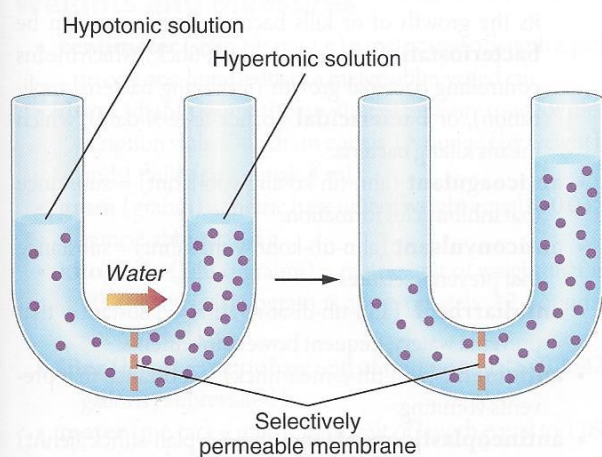


Figure 17-3 Osmosis is the movement of water across a selectively permeable membrane along its concentration gradient. In this example, water moves across the membrane to equalize the concentration of particles.

- **pharmacodynamics** (fahrm-ah-kō-dī-nahm-ihcks) = physiological effects of drugs and their mechanisms of action.
- **pharmacokinetics** (fahrm-ah-kō-kihn-eht-ihcks) = movement of drugs or chemicals; consists of absorption, distribution, biotransformation, and elimination.
- **placebo** (plah-sē-bō) = inactive substance that is given for its suggestive effects or substance used as a control in experimental setting.
- **polyvalent** (poh-lē-vā-lehnt) = vaccine, antiserum, or anti-toxin that is active against multiple antigens or organisms; mixed vaccine.
- **prevention** (prē-vehn-shuhn) = avoidance; also called **prophylaxis** (prō-fih-lahck-sihs).
- **regimen** (reh-jeh-mehn) = course of treatment.
- **turgor** (tər-gər) = degree of fullness or rigidity caused by fluid content.

Routes of Administration

- **inhalation** (ihn-hah-lā-shuhn) = vapors and gases taken in through the nose and mouth and absorbed into the bloodstream through the lungs (Figure 17-4).
- **intra-arterial** (ihn-trah-ahr-tehr-ē-ahl) = within the artery; abbreviated IA.
- **intra-dermal** (ihn-trah-dər-mahl) = within the skin; abbreviated ID.

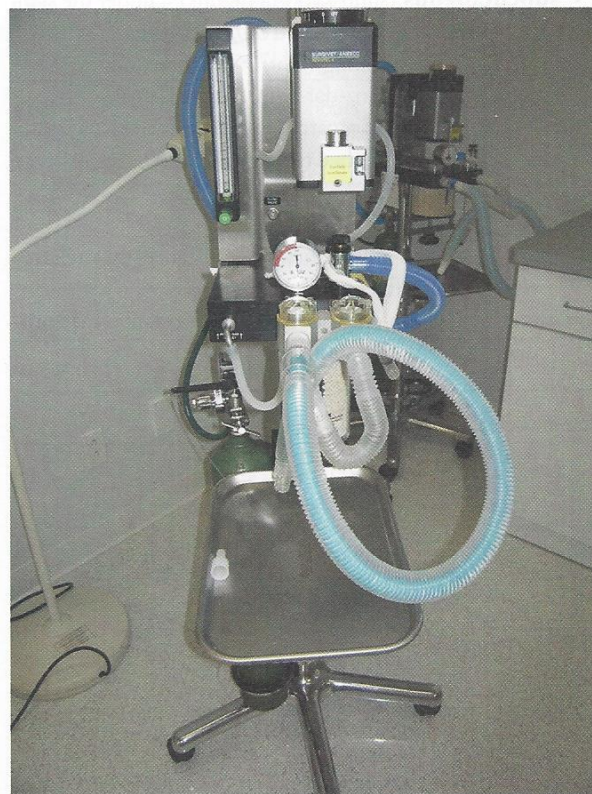


Figure 17-4 Inhalation anesthesia is given to the patient via an anesthetic machine.

- **intramuscular** (ihn-trah-muhs-kyū-lahr) = within the muscle; abbreviated IM.
- **intraocular** (ihn-trah-ohck-yoo-lahr) = within the eye.
- **intraosseous** (ihn-trah-ohs-ē-uhs) = within the bone (medullary cavity of a long bone).
- **intraperitoneal** (ihn-trah-pehr-ih-tohn-ē-ahl) = within the peritoneal cavity; abbreviated IP.
- **intrathecal** (ihn-trah-thē-kahl) = within a sheath; injection of a substance through the spinal cord and into the subarachnoid space.
- **intratracheal** (ihn-trah-trā-kē-ahl) = within the trachea, or windpipe.
- **intravenous** (ihn-trah-vehn-uhs) = within the vein; abbreviated IV.
- **nebulization** (nehb-yoo-lih-zā-shuhn) = process of making a fine mist; a method of drug administration.
- **nonparenteral** (nohn-pah-rehn-tər-ahl) = administration via the gastrointestinal tract.
- **oral** (ōr-ahl) = by mouth; abbreviated PO or p.o. *Nothing orally* is abbreviated NPO or n.p.o.
- **parenteral** (pah-rehn-tər-ahl) = through routes other than the gastrointestinal tract (Figure 17-5).
- **percutaneous** (pehr-kyoo-tā-nē-uhs) = through the skin.
- **rectal** (rehck-tahl) = by rectum.
- **subcutaneous** (suhb-kyoo-tā-nē-uhs) = under the skin, or dermal layer; abbreviated SQ, SC, or subq.
- **sublingual** (suhb-lihg-wahl) = under the tongue.
- **transdermal** (trahnz-dər-mahl) = across the skin. Medication is stored in a patch placed on the skin, and the medication is absorbed through the skin.

Drug Categories

- **analgesic** (ahn-ahl-jē-zihck) = substance that relieves pain without affecting consciousness.
- **anesthetic** (ahn-ehs-theht-ihck) = substance that produces a lack of sensation (Figure 17-6).

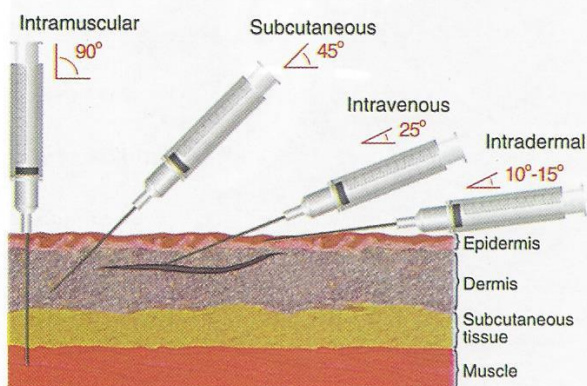


Figure 17-5 Examples of parenteral routes of drug administration.

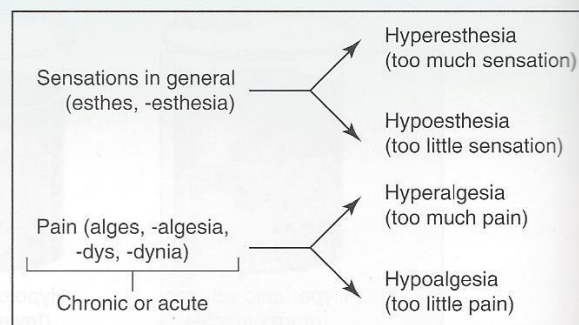


Figure 17-6 Word parts for sensation and pain.

- **anthelmintic** (ahn-thehl-mihn-tihck) = substance that works against intestinal worms.
- **antibiotic** (ahn-tih-bī-ah-tihck) = substance that inhibits the growth of or kills bacteria. Antibiotics can be **bacteriostatic** (bahck-tē-rē-ō-stah-tihck), which means controlling bacterial growth (inhibiting bacterial replication), or **bactericidal** (bahck-tē-rē-sī-dahl), which means killing bacteria.
- **anticoagulant** (ahn-tih-kō-ahg-yoo-lahnt) = substance that inhibits clot formation.
- **anticonvulsant** (ahn-tih-kohn-vuhl-sahnt) = substance that prevents seizures.
- **antidiarrheal** (ahn-tih-dī-ər-rē-ahl) = substance that prevents watery, frequent bowel movements.
- **antiemetic** (ahn-tih-ē-meh-tihck) = substance that prevents vomiting.
- **antineoplastic agent** (ahn-tih-nē-ō-plah-stihck ā-jehnt) = substance that treats neoplasms; usually used against malignancies.
- **antipruritic agent** (ahn-tih-prər-ih-tihck ā-jehnt) = substance that controls itching.
- **antipyretic** (ahn-tih-pī-reh-tihck) = substance that reduces fever.
- **antiseptic** (ahn-tih-sehp-tihck) = chemical agent that kills or prevents the growth of microorganisms on living tissue.
- **antitussive** (ahn-tih-tuhs-ihv) = substance that reduces coughing.
- **asepsis** (ā-sehp-sihs) = state without infection.
- **chronotrope** (krohn-ō-trōp) = substance that changes heart rate. Positive chronotropes increase heart rate, while negative chronotropes decrease heart rate.
- **cytotoxic agent** (sī-tō-tohcks-ihck ā-jehnt) = substance that kills or damages cells.
- **disinfectant** (dihs-ehn-fehck-tahnt) = chemical agent that kills or prevents the growth of microorganisms on inanimate objects.
- **emetic** (ē-meh-tihck) = substance that induces vomiting.
- **endectocide** (ehnd-ehck-tō-sid) = agent that kills both internal and external parasites.

- **immunosuppressant** (ihm-yoo-nō-suhp-prehsahnt) = substance that prevents or decreases the body's reaction to invasion by disease or foreign material.
- **inotrope** (ihn-ō-trōp) = substance affecting muscle contraction. Positive inotropes increase myocardial contractility, while negative inotropes decrease myocardial contractility.
- **miotic agent** (mī-ah-tihck ā-jehnt) = substance used to constrict the pupils.
- **mucolytic** (mū-kō-lih-tihck) = substance that breaks up mucus and reduces its viscosity.
- **mydriatic agent** (mihd-rē-ah-tihck ā-jehnt) = substance used to dilate the pupils.
- **sterilize** (stehr-ih-liz) = to destroy all organisms including bacterial endospores.

Weights and Measures

- **centimeter** (sehn-tih-mē-tər) = metric unit of length equal to one one-hundredth of a meter; abbreviated cm.
- **dram** (drahm) = apothecary unit of measure used for prescription vials. One dram equals 1.8 ounce (by weight), and 1 fluid dram equals 4 mL.
- **gram** (gramm) = metric base unit of weight equal to 0.035 ounce; abbreviated g.
- **kilogram** (kihl-ō-grahm) = metric unit of weight that is 1000 grams; 1 kilogram is approximately 2.2 pounds; abbreviated kg.
- **liter** (lē-tər) = metric base unit of volume equal to 0.2642 gallons; abbreviated L.
- **meter** (mē-tər) = metric base unit of length equal to 1.09 yards; abbreviated m.
- **milligram** (mihl-ih-grahm) = metric unit of weight equal to one one-thousandth of a gram; abbreviated mg.
- **milliliter** (mihl-ih-lē-tər) = metric unit of volume equal to 0.034 of an ounce or one one-thousandth of a liter; abbreviated mL; equivalent to 1 cubic centimeter (cc) (Table 17-1).
- **millimeter** (mihl-ih-mē-tər) = metric unit of length equal to one one-thousandth of a meter; abbreviated mm.
- **percent** (pər-sehnt) = part per 100 parts; represented by %.

SURGICAL TERMS

Surgery is the branch of science that treats diseases, injuries, and deformities by manual or operative methods. Surgical terms were developed to describe concisely many surgical procedures. Some surgical terms include the following:

- **appositional** (ahp-ō-sih-shuhn-ahl) = placed side to side.
- **aseptic technique** (ā-sehp-tihck tehck-nēk) = precautions taken to prevent contamination of a surgical wound.
- **avulsion** (ā-vuhl-shuhn) = tearing away of a part.

Table 17-1 Frequently Used Drug Abbreviations

Abbreviation	Definition
bid	twice daily (bis in die)
̄	with
cc	cubic centimeter (same as mL)
gt	drop (gutta); drops is gtt (guttae)
mL	milliliter
NPO/n.p.o	nothing orally (non per os)
̄	after
PO/p.o.	orally (per os)
prn	as needed
q	every
q4h	every 4 hours
q6h	every 6 hours
q8h	every 8 hours
q12h	every 12 hours
q24h	every 24 hours
qd	every day (same as sid)
qh	every hour
qid	four times daily
qn	every night
qod or eod	every other day
̄	without
sid	once daily (qd or q24h is the preferred abbreviation)
T	tablespoon or tablet
tab	tablet (also abbreviated T)
tid	three times daily (ter in die)

- **coaptation** (kō-ahp-tā-shuhn) = act of approximating.
- **curettage** (kyoo-reh-tahj) = removal of material or growths from the surface of a cavity.

- **debridement** (deh-brēd-mehnt) = removal of foreign material and devitalized or contaminated tissue.
- **dehiscence** (dē-hihs-ehns) = disruption or opening of the surgical wound (Figure 17-7).
- **dissect** (di-sehckt) = separation or cutting apart; **dissectare** is Latin for “to cut up.”
- **enucleation** (ē-nə-klē-ā-shuhn) = removal of an organ in whole; usually used for removal of the eyeball (Figure 14-18).
- **epithelialization** (ehp-ih-thē-lē-ahl-ih-zā-shuhn) = healing by growth of epithelium over an incomplete surface.
- **eversion** (ē-vər-shuhn) = turning outward (Figure 17-8).
- **eviscerate** (ē-vihs-ər-āt) = removal or exposure of internal organs.
- **excise** (ehck-sīz) = to surgically remove.
- **exteriorize** (ehcks-tēr-ē-ōr-iz) = to move an internal organ to the outside of the body (Figure 12-26 which shows exteriorization of the female reproductive tract).



Figure 17-7 Wound dehiscence in a cat. (Courtesy of Kimberly Kruse Sprecher, CVT.)

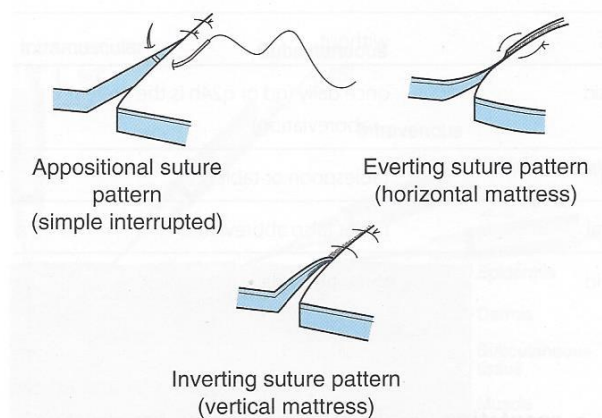


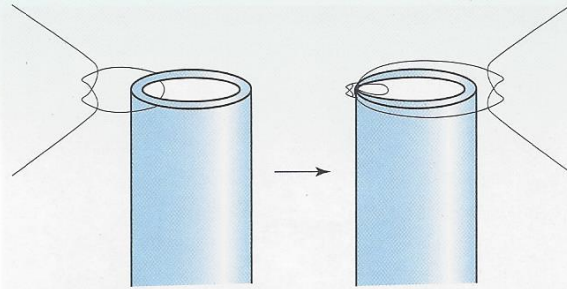
Figure 17-8 Appositional versus everting versus inverting suture patterns.



Figure 17-9 Skin graft in a dog. (Courtesy of Kimberly Kruse Sprecher, CVT.)

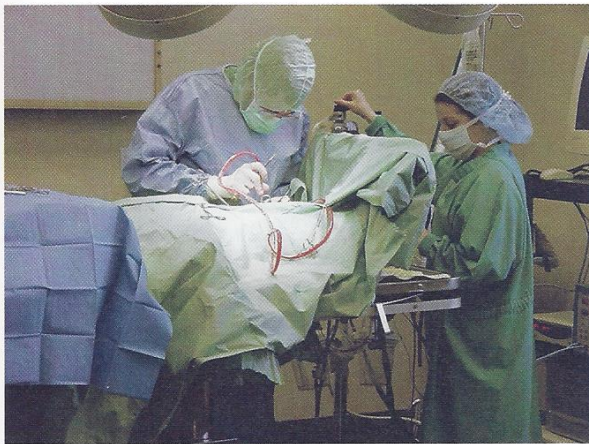
- **fenestration** (fehn-ih-strā-shuhn) = perforation.
- **flap** (flahp) = mass of tissue for grafting in which part of the tissue still adheres to the body; used to repair defects adjacent to the mass site.
- **fracture** (frahck-shər) = breaking of a part, especially a bone.
- **friable** (fri-ah-buhl) = easily crumbled.
- **fulguration** (fuhl-gər-ā-shuhn) = destruction of living tissue by electric sparks generated by a high-frequency current.
- **graft** (grahft) = tissue or organ for transplantation or implantation (Figure 17-9). There are different types of grafts. An **allograft** (ah-lō-grahft) is a graft from another individual of the same species. An **autograft** (awt-ō-grahft) is a graft from the same individual. An **isograft** (i-sō-grahft) is a graft from genetically identical animals, such as twins or inbred strains.
- **imbrication** (ihm-brih-kā-shuhn) = overlapping of apposing surfaces to realign organs and provide extra support.
- **implant** (ihm-plahnt) = material inserted or grafted into the body.
- **incise** (ihn-sīz) = to surgically cut into.
- **intraop** (ihn-trah-ohp) = common term for *during surgery*; intraoperatively.
- **inversion** (ihn-vər-shuhn) = turning inward.
- **involucrum** (ihn-voh-loo-kruhm) = covering or sheath that contains a sequestrum of bone.
- **laceration** (lah-sihr-ā-shuhn) = act of tearing.
- **lavage** (lah-vahj) = irrigation of tissue with fluid.
- **ligate** (li-gāt) = to tie or strangulate. A **ligature** (lih-ah-chūr) is any substance used to tie or strangulate. Ligatures usually are made of suture material.
- **lumpectomy** (luhmp-ehck-tō-mē) = general term for surgical removal of a mass.
- **pinning** (pihn-ihng) = insertion of a metal rod into the medullary cavity of a long bone.

- **postop** (pōst-ohp) = common term for after surgery; postoperatively.
- **preop** (prē-ohp) = common term for before surgery; preoperatively.
- **resect** (rē-sehckt) = to remove an organ or tissue. Resect is used in reference to holding tissue or an organ out of the surgical field.
- **rupture** (ruh-p-chuhr) = forcible tearing.
- **sacculotomy** (sahk-yoo-lehck-tō-mē) = surgical removal of a saclike part; usually refers to surgical removal of the anal sacs.
- **seroma** (sehr-ō-mah) = accumulation of serum beneath the surgical incision.
- **suction** (suhck-shuhn) = aspiration of gas or fluid by mechanical means (Figures 17–10a and b).
- **suture** (soo-chuhr) = to stitch or close an area; also refers to the material used in closing a surgical or traumatic

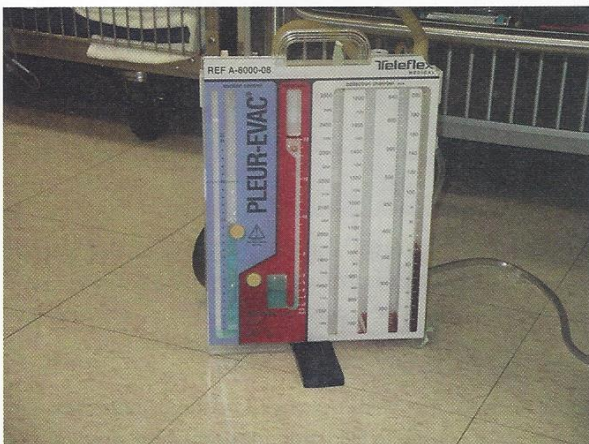


Transfixion suture

Figure 17–11 Transfixion suture. Transfixion sutures are used for large, isolated vessels and organs to prevent slippage of the ligature.



(a)



(b)

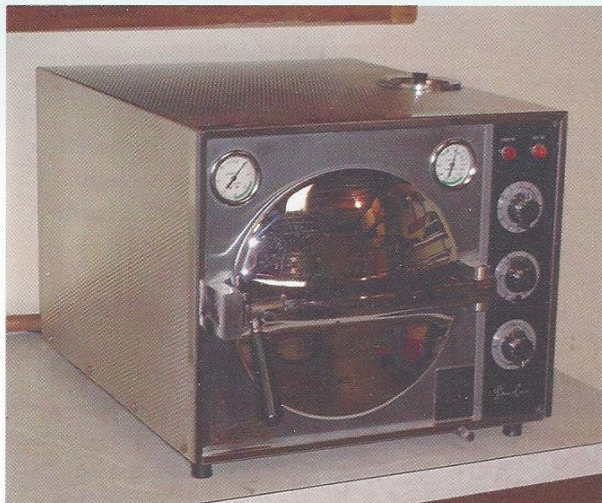
Figure 17–10 (a) Suction is used to remove fluid (or gas) during surgery. (b) Suction unit showing the collection chamber. [(a) Courtesy of Dr. David Sweet and Ann Zackim; (b) Courtesy of Kimberly Kruse Sprecher, CVT.]

wound with stitches. Suture material may be absorbable or nonabsorbable. (Suture also is a type of joint.)

- **transect** (trahn-sehckt) = to cut across; a cross section or section made across a long axis. **Sect** means to cut.
- **transfix** (trahnz-fihcks) = pierce through and through. A transfixion suture pierces through an organ before ligation (Figure 17–11).
- **transplant** (trahnz-plahnt) = to transfer tissue from one part to another part.
- **wicking** (wihck-ihng) = applying material to move liquid from one area to another.

Surgical Equipment

- **autoclave** (aw-tō-klāv) = apparatus for sterilizing by steam under pressure (Figure 17–12).
- **bandage** (bahn-dahj) = to cover by wrapping or the material used to cover by wrapping (Figure 17–13).
- **belly band** (behl-ē bahnd) = common term for abdominal wrap; circumferentially wrapping the abdomen with bandages to apply pressure to the area.
- **bone plate** = flat metal bar with screw holes that is used in bone fracture repair (Figures 17–14a and b).
- **bone screw** = screw that holds bone fragments together to repair bone fractures.
- **boxlock** (bohcks-lohck) = movable joint of any ringed instrument (Figure 17–15).
- **cast** (kahst) = stiff dressing used to immobilize various body parts.
- **cautery** (caw-tər-ē) = application of a burning substance, a hot instrument, an electric current, or another agent to destroy tissue.
- **cerclage** (sihr-klahj) **wire** = band of metal that completely (cerclage) or partially (hemicerclage) goes around the circumference of bone that is used in conjunction with other stabilization techniques to repair bone fractures (Figure 17–16).



(a)

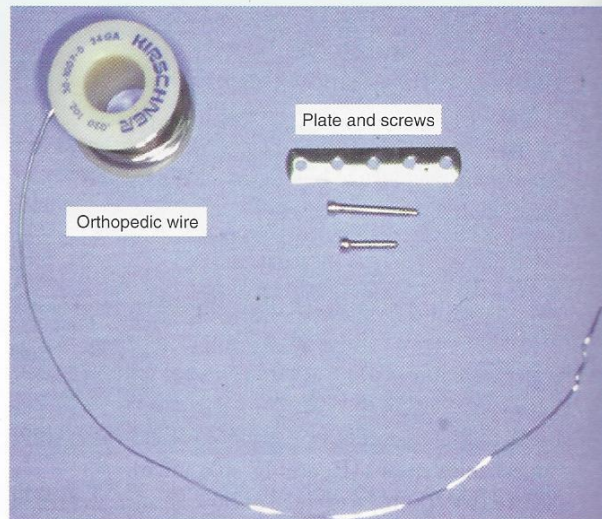


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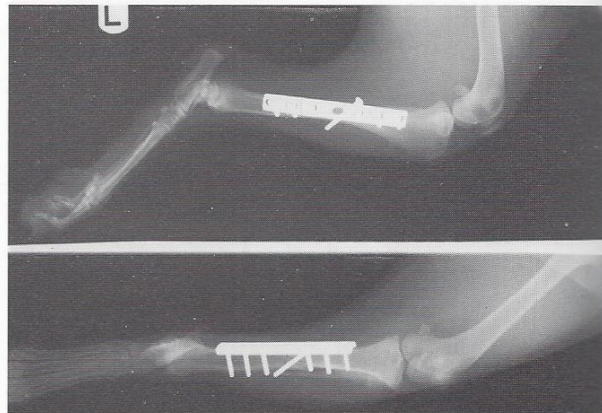
Figure 17-12 (a) An autoclave provides high-pressure steam heat to sterilize surgical instruments. (b) In a surgery pack (a collection of instruments used for one procedure) that has been properly autoclaved, the indicator tape will change from light-colored lines (roll on right) to dark-colored lines (tape on pack).



Figure 17-13 Puppy with a Robert Jones bandage. (Courtesy of Lodi Veterinary Hospital, SC.)



(a)



(b)

Figure 17-14 (a) Examples of orthopedic equipment (b) Radiograph showing the repair of a tibial fracture using a bone plate and screws. [(a)Courtesy of Teri Raffel, CVT.]

- **chuck** (chuhck) = clamping device for holding a drill bit.
- **clamp** (klahmp) = instrument used to secure or occlude things.
- **curette** (kyoor-reht) = instrument with cupped head to scrape material from cavity walls.
- **drain** (drän) = device by which a channel may be established for the exit of fluids from a wound (Figures 17-17a and b).
- **drape** (drâp) = cloth arranged over a patient's body to provide a sterile field around the area to be examined, treated, or incised.
- **dressings** (drehs-sihng) = various materials used to cover and protect a wound.
- **elastrotor** (ê-lahs-trä-tər) = bloodless castration device using small elastic bands.

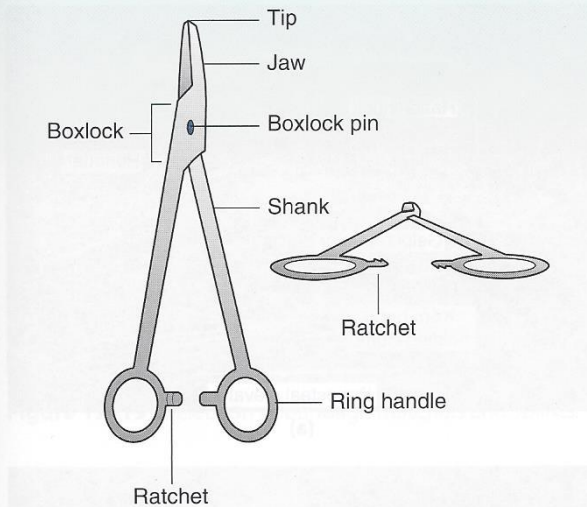


Figure 17-15 Parts of surgical instruments.

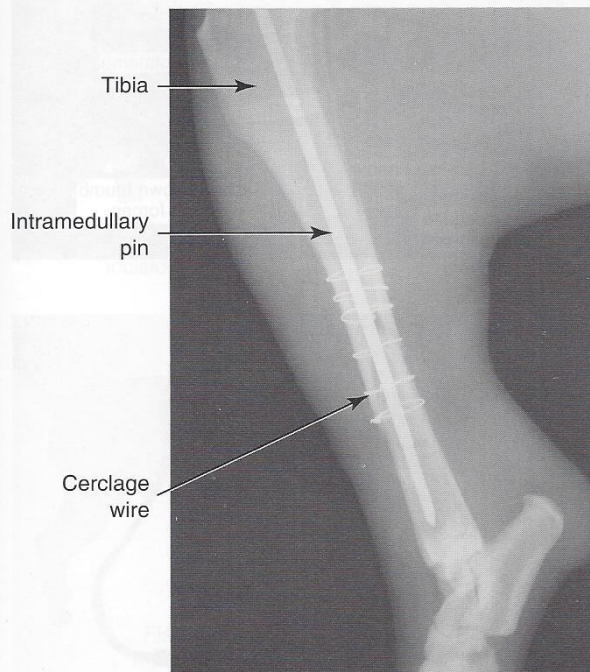


Figure 17-16 Radiograph showing the repair of a fractured tibia. The bone was repaired with an intramedullary pin and six cerclage wires.

- **elevator** (ehl-eh-vā-tər) = instrument used to reflect tissue from bone.
- **emasculator** (ē-mahs-kyoo-lah-tōm) = instrument used to crush and sever the spermatic cord through intact skin.
- **emasculator** (ē-mahs-kyoo-lā-tər) = instrument used in closed castrations to crush and sever the spermatic cord.



Figure 17-17 Surgical drain. (a) A Penrose drain was placed in the flank area of this dog to maintain an opening in the skin that allows accumulating fluid to drain to the exterior. The fluid does not drain through the center of the tubing, but is allowed to leak from the skin openings. (b) Dog with an active drain and reservoir unit which allows measurement of drainage volume and description of the fluid appearance. (Courtesy of Kimberly Kruse Sprecher, CVT.)

- **hemostatic forcep** (hē-mō-stah-tihck fōr-sehp) = locking instrument used to grasp and ligate vessels and tissues to control bleeding; also called **hemostat** (hē-mō-stah).
- **intramedullary pins** (ihn-trah-mehd-yoo-lahr-ē pihnz) = metal rods that are inserted into the medullary cavity of long bones to repair stable fractures (Figure 17-16).
- **prosthesis** (prohs-thē-sihs) = artificial substitute for a diseased or missing part of the body.
- **ratchet** (rah-cheht) = graded locking portion of an instrument located near the finger rings.
- **retractor** (rē-trahck-tār) = instrument used to hold back tissue (Figure 17-18).
- **rongeurs** (rohn-jürz) = forceps with cupped jaws used to break large bone pieces into smaller ones.
- **scalpel** (skahl-puhl) = small, straight knife with a thin, sharp blade used for surgery and dissection.
- **serration** (sihr-ā-shuhn) = sawlike edge or border.
- **sling** (slihng) = bandage for supporting part of the body.
- **splint** (splihnt) = rigid or flexible appliance for fixation of movable or displaced parts (Figure 17-19).
- **tissue forceps** (tihs-yoo fōr-sehps) = tweezerlike, non-locking instruments used to grasp tissue.

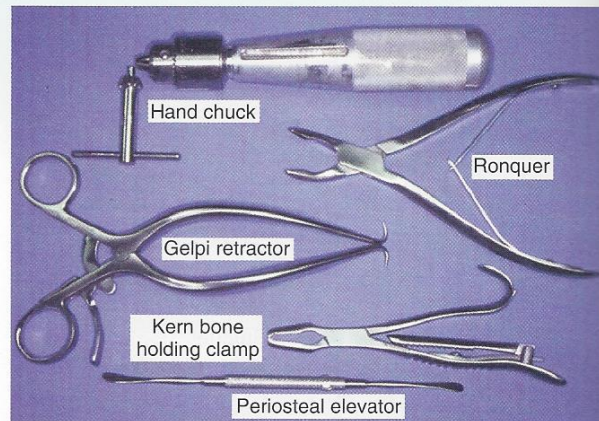
Surgical Approaches

In surgery, the specific procedure by which an organ or a part is exposed is called the **approach** (ah-prōch). Different approaches allow the best exposure to different parts of the body. Following are examples of different surgical approaches (Figure 17-20):

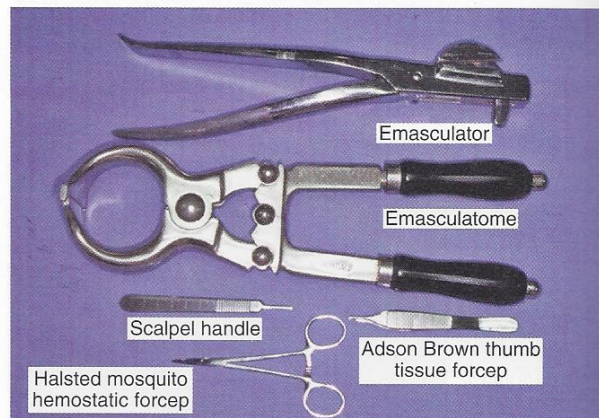
- **flank incision** (flahnk ihn-sihz-shuhn) = surgical cut perpendicular to the long axis of the body, caudal to the last rib.
- **paracostal incision** (pah-ah-kah-stahl ihn-sihz-shuhn) = surgical cut oriented parallel to the last rib.
- **paramedian incision** (pah-ah-mē-dē-ahn ihn-sihz-shuhn) = surgical cut lateral and parallel to the ventral midline but not on the midline.
- **ventral midline incision** (vehn-trahl mihd-lin ihn-sihz-shuhn) = surgical cut along the midsagittal plane of the abdomen along the linea alba.

Biopsies

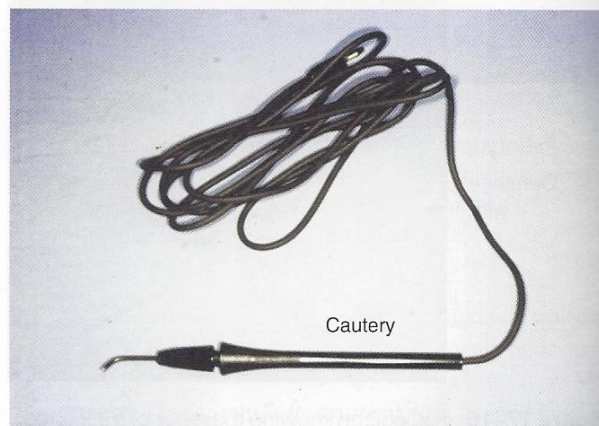
The term **biopsy** (bī-ohp-sē) means removing living tissue to examine. Biopsy also is used for the specimen removed during the procedure. The first definition is more correct; however, the term *biopsy* is commonly used both ways.



(a)



(b)



(c)

Figure 17-18 (a) and (b) Examples of surgical instruments. (c) Cautery unit for hemostasis. (Courtesy of Teri Raffel, CVT.)

Types of biopsies include the following:

- **excisional biopsy** (ehcks-sih-shuhn-ahl bī-ohp-sē) = removing entire mass, tissue, or organ to examine.
- **incisional biopsy** (ihn-sih-shuhn-ahl bī-ohp-sē) = cutting into and removing part of a mass, a tissue, or an organ to examine.

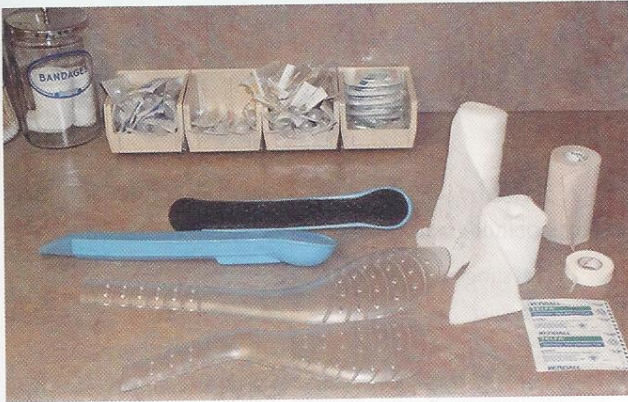


Figure 17-19 Selection of bandage materials and splints.

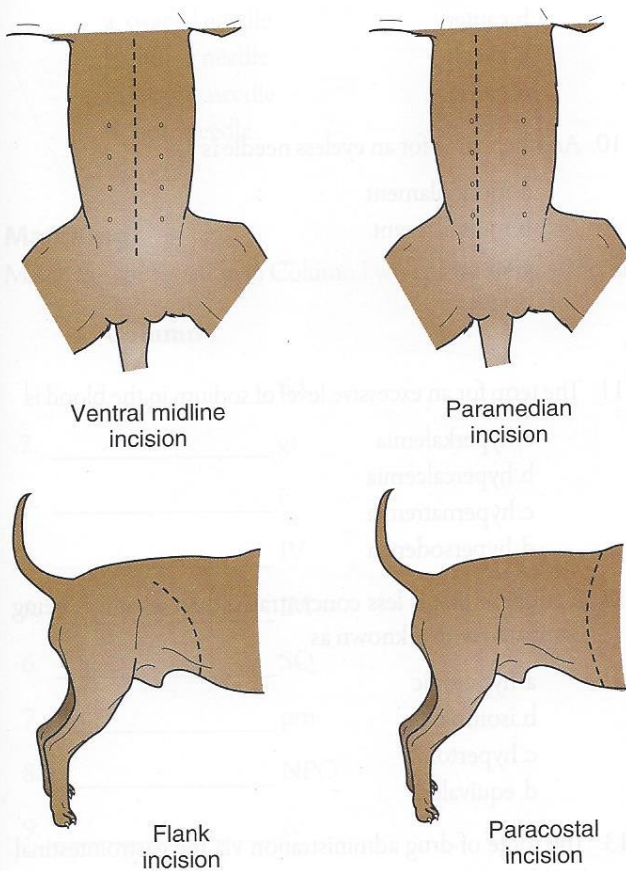


Figure 17-20 Incision types.

- **needle biopsy** (nē-dahl bī-ohp-sē) = insertion of a sharp instrument (needle) into a tissue for extraction of tissue to be examined.

A **necropsy** (nē-kroh-p-sē) is a postmortem examination that consists of a thorough examination of a dead animal to determine the cause and manner of death and to evaluate any disease or injury that may be present.

Needles and Sutures

Suture material and needles are used by surgeons to close wounds or to tie things (Figure 17-21). Terms used in reference to suture material and needles include the following:

- **blunt** (bluhnt) = dull, not sharp; used to describe needles or instrument ends.
- **cutting needle** (kuht-ihng) = needle that has two or three opposing cutting edges.
- **ligation** (lī-gā-shuhn) = act of tying.
- **ligature** (lih-gah-chūr) = substance used to tie a vessel or strangulate a part.
- **monofilament** (mohn-ō-fihl-ah-mehnt) = single strand of material; used to describe suture.
- **multifilament** (muhl-tī-fihl-ah-mehnt) = several strands that are twisted together; used to describe suture.
- **stapling** (stā-plihng) = method of suturing that involves the use of stainless steel staples to close a wound.
- **surgical clip** (sihr-jih-kahl klihp) = metal staplelike device used for vessel ligation.
- **swaged needle** (swehgd) = needle joined with suture material in a continuous unit; eyeless needle.
- **taper needle** (tā-pər) = needle with a rounded tip that is sharp to allow piercing but not cutting of tissue.

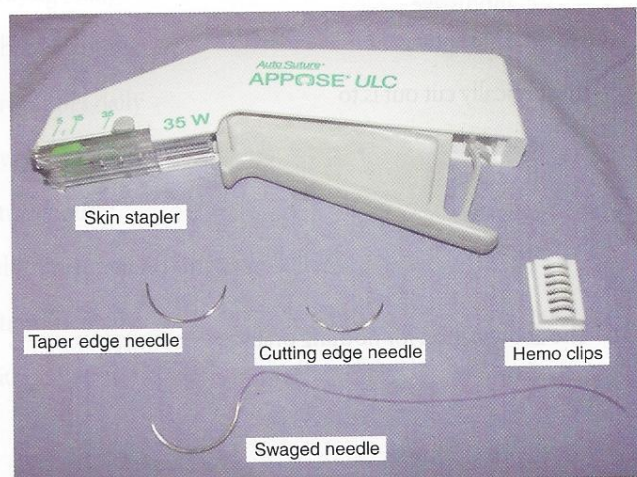


Figure 17-21 Needles and staples. (Courtesy of Teri Raffel, CVT.)