

CHAPTER - 12

Drawing and labeling of male and female reproductive organs

A. Male reproductive organs

Objectives

- a) To learn different parts of male reproductive system
- b) To understand the functional significance of different parts of the system

Introduction

Good reproductive performance of a bull is necessary to obtain a high conception rates in natural service or artificial breeding. A bull must be fertile, capable and willing to mate a large number of cows during a short breeding season for optimum production. A basic knowledge of the reproductive tract is beneficial for improved management. An understanding of the bull's reproductive system will also help in better understanding of breeding soundness examinations, reproductive problems and breeding impairments.

Points to remember

1. The testicle is located outside the body cavity in the scrotum and has two vital functions: producing the spermatozoa and male hormone (testosterone).
2. The scrotum provides physical protection to the testicle and helps in regulation the temperature for optimum spermatozoa development.
3. The epididymis is a compact, flat, elongated structure closely attached to one side of the testicle. It is divided into three regions, the head, body and tail.
4. The vas deferens, also known as ductus deferens, emerges from the tail of the epididymis as a straight tubule and passes as part of the spermatic cord through the inguinal ring into the body cavity.
5. The two vas deferens eventually unite into a single tube, the urethra, which is the channel passing through the penis. The urethra in the male serves as a common passageway for semen from the reproductive tract and urine from the urinary tract.
6. The seminal vesicles consist of two lobes about 4 to 5 inches long, each connected to the urethra by a duct.

7. The prostate gland is located at the neck of the urinary bladder where it empties into the urethra. The prostate is relatively small in the bull, as compared to other species, and does not produce a very large volume secretion.
8. The third accessory gland, the Cowper's glands, is small, firm glands located on either side of the urethra. The clear secretion that often drips from the penis during sexual excitement prior to service is largely produced by these glands and serves to flush and cleanse the urethra of any urine residue that may be harmful to spermatozoa.
9. The penis is the organ of copulation. Strong retractor muscles hold the penis in the "S" shaped configuration.
10. The penis is protected in a sheath called prepuce. Indian bulls (like Sahiwal) have pendulous sheath.

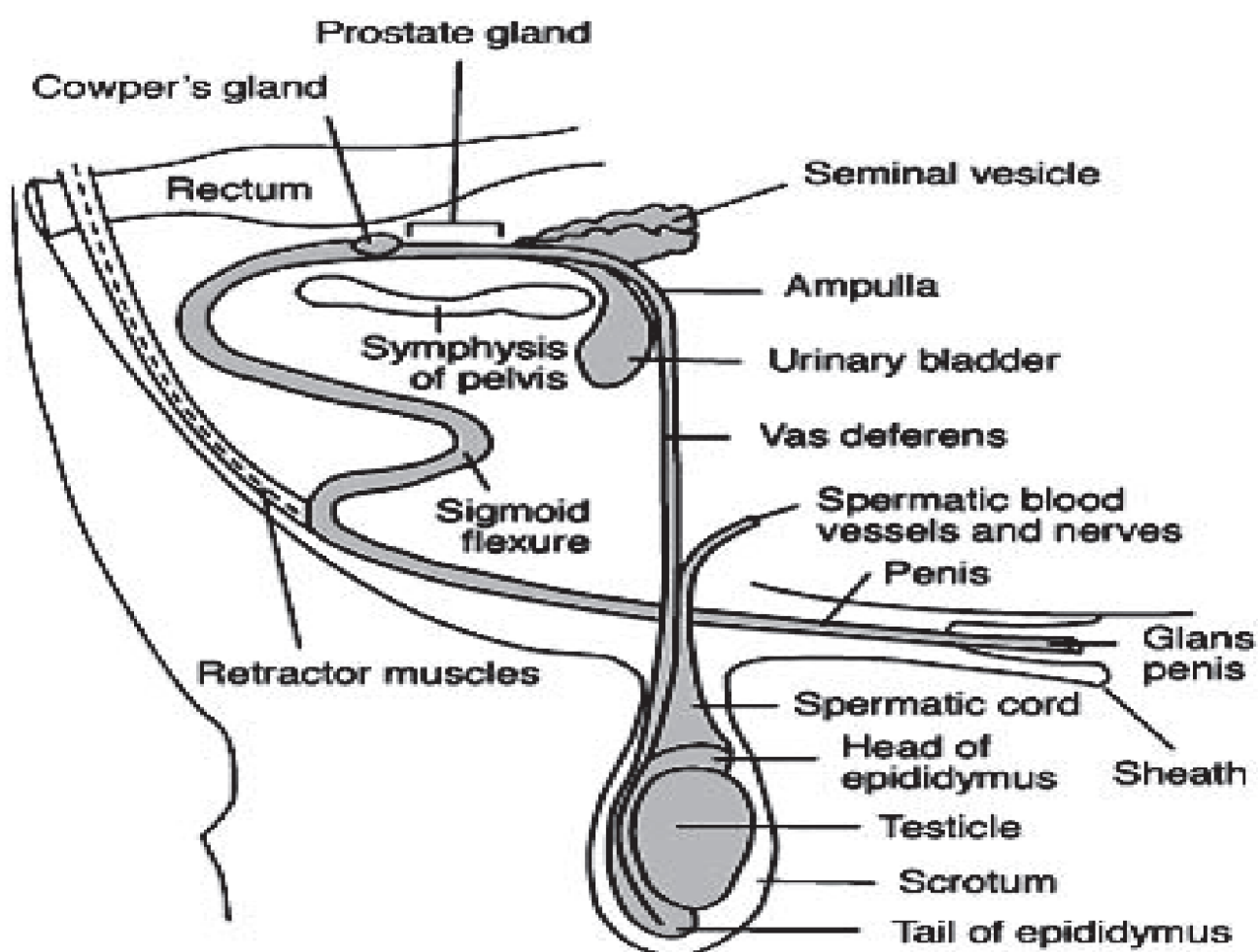
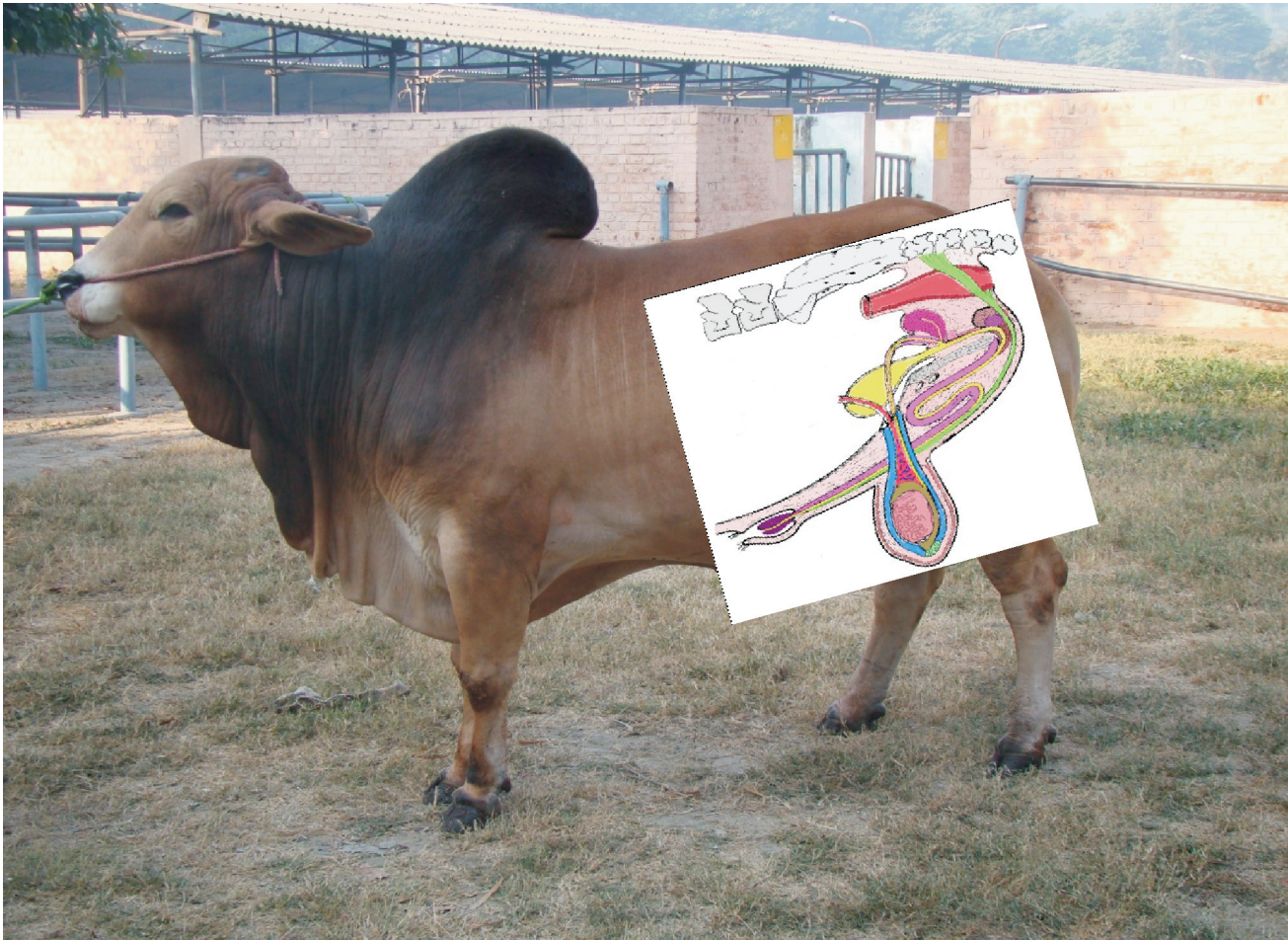


Fig. 12.1 Parts of bull reproductive tract

Sample question:

Identify different organs in the following bull photograph



B. Female reproductive organs

Objectives

- a) To study different parts of female reproductive system.
- b) To understand the functional significance of different parts of the system.

Introduction

The ability of a cow to successfully mate, conceive, give birth to and raise a healthy calf each year is essential to economical production. A good understanding of anatomy and physiology of both the male and female is helpful in successfully managing reproduction. Thorough knowledge about the anatomy of reproductive organs is primary requisite to understand the reproduction physiology. Unless one know the normal anatomy and

physiology of female reproductive organs, it would not be possible to identify reproductive problems. Also this is essentially required for carrying out artificial insemination in cows.

Points to remember

1. The ovaries are considered the primary reproductive organs in the female. They are primary because they produce the female gamete (the ovum) and the female sex hormones (estrogens and progesterone). The ovary of the cow is almond-shaped.
2. Unlike testes which are located outside the body the ovaries are located inside the body.
3. The oviducts (also called fallopian tubes) are a pair of convoluted tubes extending from near the ovaries to and becoming continuous with the tips of the uterine horns. It is divided into four regions, the isthmus, ampulla, infundibulum and fimbria.

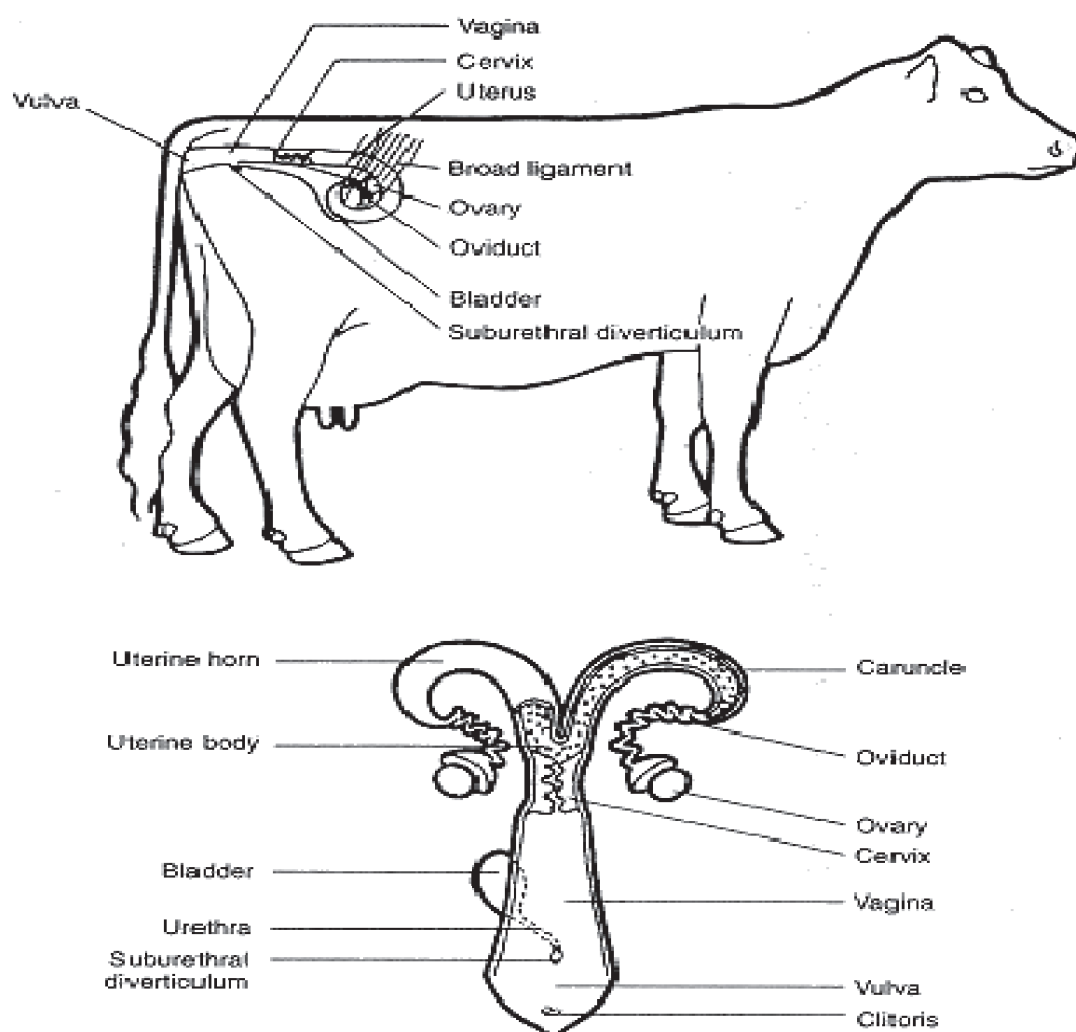


Fig. 12.3. Parts of cow reproductive tract

4. The uterus extends from the uterotubal junctions to the cervix. The body of the uterus of the cow is short and poorly developed, while the uterine horns are relatively long and well developed. The fertilized embryo moves from the oviduct into the uterine horn, where fetal and maternal membrane development begins.
5. The cervix is thick-walled and inelastic, the anterior end being continuous with the body of the uterus while the posterior end protrudes into the vagina.
6. The vagina is tubular in shape, thin-walled and quite elastic. The length of the vagina ranges from 25 to 30 cm in the cow.
7. The vulva, or external genitalia, consist of the vestibule with related parts and the labia. The vestibule is that portion of the female reproductive system that is common to both the reproductive and urinary systems.

Sample question

Identify different parts of cow reproductive tract and label them neatly

