ANATOMY AND PHYSIOLOGY OF THE FEMALE GENERATIVE ORGANS

Every physician who has a general family practice is consulted frequently by women regarding some disorder of the generative organs. The only complaint may be an irritation of the external parts, or vague pains which are hard to locate. However, the majority complain of more severe pain in the pelvis or lower portion of the body cavity.

Whatever the disorder that sends the patient to her physician, it is quite necessary for the physician to explain the structure of the organs to the patient in order that she may have a clear picture of them, and of their relationship to one another and be able to understand the physiology and normal function of these organs and how they are affected by abuse or disease.

It is a strange fact that while girls and boys are blamed should any harm result to these organs because of thoughtless acts, yet it is not considered necessary in the average school to teach the growing youth anything regarding the structure and care of the organs which are developing into maturity and which have so great an effect upon the entire life. Fortunately, during the last few years health instruction has been introduced into the more progressive schools as a part of the required program and it is possible, and even probable, that within a few years we shall realize that the hygiene of the generative organs is as important to the welfare of youth as is the hygiene of the eye and mouth.

At one time I was asked to give a talk to a group of university students on the two common venereal or social diseases,
gonorrhoea and syphilis, but after I had commenced my talk I realized, from the questions asked me and from the answers to questions I asked the students, that they had no idea of the

VERTICAL SECTION OF FEMALE PELVIS

structure of the organs affected by these diseases, and it was necessary, in order to make my subject understandable, to go back and give a brief description of the organs affected.
The organs of generation begin to develop very early in foetal life, so sex is determined long before a baby is born. Naturally these organs are small in early life as the strength of the body is given to developing the framework and muscles, and it is not until the age of puberty that the sex organs make any progress in development.

Fortunately, or unfortunately, according to which particular problem we are discussing, the important organs of generation of the female lie within the body cavity. Fortunately, because they are protected by the bony structure and its muscular covering to a great extent; unfortunately, because that which is concealed is ignored or becomes the object of morbid curiosity.

The important organs of generation in the female are the uterus, the ovaries, the fallopian tubes, and the vagina. Besides these there are others of less importance, as the clitoris and the vulva. To these also might be added the breasts or mammary glands and the thyroid which has such an intimate nervous relationship to the important organs.

The uterus is the largest of the organs. It is designed as a nest for the developing babe from conception to birth and lies well protected within the lower body cavity. The uterus of the mature woman is about the size and shape of a flattened pear. The size naturally varies somewhat with the individual, but the average is considered about three inches long, two inches wide and one inch thick. It is suspended in a nearly perpendicular position in the lower portion of the body cavity by means of ligaments which allow it considerable opportunity to bend forward or backward or even to become displaced downward. Hence it is not considered as a fixed organ such as those which are held in place more securely. The ligaments, being elastic, allow the uterus to change its position somewhat with the various movements of the body. Normally it is inclined forward resting on the bladder which is directly in front of the uterus; however, a full bladder tends to push it backward, while a full rectum will push it forward again.
This important organ, the uterus, consists of layers of muscles enclosing a cavity which is comparatively small on account of the thickness of the muscles, but this cavity has the power to enlarge as the need arises. The cavity is triangular in shape with the base of the triangle uppermost. At each of the three points of the triangle is an opening, the lower one leading into the vagina and the other two into the two fallopian tubes.

The vagina is a curved and distensible muscular tube about
three inches long extending from the external surface of the body to the uterus, the lower portion of which projects into the vagina. Thus the lower end of the uterus is enclosed by the upper walls of the vagina, and it is through this passageway that the baby is forced during birth, hence the vagina frequently is called the birth canal.

Each of the other two openings from the uterus leads into one of the fallopian tubes, or oviducts, which branch to either side away from the uterus. Each tube is about four inches long, but the opening through the center in the largest portion is only about the size of a broom straw, while near the uterus it narrows down until it will admit only a fine bristle. The further end of each tube opens into the body cavity. The tube itself consists of muscular structure which form fimbriated ends surrounding the opening.

Near the end of each tube, but not directly connected with it, is suspended a small almond-shaped body called an ovary. Each ovary measures about one and a half inches in length, three-fourths of an inch in width and one-half an inch in thickness.

The ovaries have the power, and it is part of their function, to produce, develop and mature the eggs or ova and to discharge them one at a time into the body cavity so they may enter the open end of the tube and find their way into the uterus. Just how this is accomplished is a question not fully decided. Some investigators claim the loose end of the tube applies itself to the ovary at the proper time, while others claim that the ends of the tube keep up a motion which tends to suck the ovule into the tube. At any rate, at irregular times one of the ovules that has been developing in the ovary reaches a stage of maturity and leaves the ovary and by some means finds its way into the fallopian tube and passes along into the uterus. Considering the small size of the tube, it is easy to understand how any inflammation could close the tiny opening and so prevent the ovum entering the uterus.
After the ovum, or mature ovule, reaches the uterus its fate is decided by whether it is fertilized or not. If it is impregnated, or fertilized, it remains and attaches itself to the side of the uterine cavity and begins to develop. If not fertilized, it passes off with the menstrual flow.

NATURAL SIZE OF THE OVARIES, FALLOPIAN TUBES AND UTERUS OF A WOMAN OF 25 YEARS OF AGE

Nature has provided that every twenty-eight days large quantities of blood should be sent to the uterus, producing a natural congestion. The pressure of this extra amount of blood stretches the walls of the tiny capillaries and weakens them so the blood passes through into the uterine cavity, on to the vagina, and is discharged externally. This flow is called the
menstrual flow. If the ovum had been fertilized the extra blood would have been retained to provide nourishment for the developing ovum.

The average duration of the menstrual flow is four days, after which the lining of the uterus resumes its normal condition.

The external opening of the vagina is protected by two longitudinal folds of skin extending from the anus, or external opening of the rectum, to the rounded eminence in front. The outer surface of each fold is covered with protecting hair while the other surface is provided with glands which secrete a lubricating material. Within these folds are two smaller folds which meet at the anterior end. At the meeting point is a small structure, normally about the size of a pea, but similar to the penis of the male in structure. This organ is called the clitoris, while the two larger folds are called the labia majora and the smaller ones the labia minora.

The clitoris has a tiny foreskin similar to that of the male, and like that of the male organ sometimes this foreskin is bound down too tightly and causes irritation. An operation similar to circumcision in the male must be performed to relieve the nervous irritation.

Within the folds of the labia, just anterior to the vaginal opening, is the meatus urinarius or opening into the small tube that leads to the bladder. This tube is about an inch and a half long. By its close association with the vaginal opening infection from the vagina not infrequently travels to the bladder.

The vaginal opening which lies between the meatus urinarius and the rectum is partially closed in the virgin by a fold of membrane called the hymen or maidenhead. The shape and size of the fold vary greatly with the individual. In some, it is normally absent, while in a few it entirely closes the vaginal orifice. In the average virgin there is only a small opening, but this is easily stretched by an examination and sometimes is torn by violent exercise, as horseback riding. The presence of
an intact hymen does not necessarily indicate virginity, nor does its absence or rupture always indicate defloration. Authentic cases are on record in which prostitutes have an intact hymen, and the use of vaginal astringents by a sophisticated gold-digger may deceive even a court physician.

Posterior to the vagina is the anus, or opening into the rectum. The surface between these two openings is called the perineum which not infrequently is torn during childbirth, as the vaginal opening does not always stretch sufficiently to allow the passage of the babe, and the great pressure which is being exerted by the abdominal and uterine muscles forces the head onward, causing a tear. If this tear is repaired at the time, no inconvenience ordinarily results, but if it is neglected it may be the cause of more serious trouble later in life.

While the breasts are not directly connected with the other female organs, yet there is an intimate relationship as is shown by the fact that the breasts frequently enlarge and become painful during, or preceding, the menstrual flow, and milk is secreted in them whenever pregnancy is present.

The breasts of a girl are no more developed in childhood than are those of a boy, but at the age of puberty when the other sex organs are developing, they gradually increase in size. The breasts consist of fatty tissue surrounding milk glands and ducts. These glands are inactive during the greater part of a woman's life, but during pregnancy they increase in size and become filled with milk. After the period of nursing has passed they again return to a smaller size.