International Journal of Modern Anthropology
Int. J. Mod. Anthrop. (2013) 6: 78 - 84
Available online at: www.ata.org.tn ; doi: http://dx.doi.org/10.4314/ijma.v1i6.4

Original Discovery Report

A theoretical ovary position in link with the global anatomical structure of each human female body

Hassen Chaabani

Hassen Chaabani was born the 07 / 09 / 1947 in Tunis (Tunisia).
He is Full Professor and research unit Director at Monastir University.
He is the Founder and the President of the Tunisian Association of Anthropology.
He is the Founder and the Editor of the International Journal of Modern Anthropology.
Specialist in Human Genetics, Biological Anthropology and some cultural and religious subjects, he wrote many articles and books.

University of Monastir, Faculty of Pharmacy, 5000 Monastir, Tunisia.

Abstract - Generally the position of different organs is determined by simple description following the anatomical elements surrounded them and such description could be developed and applied in surgical anatomy. Here, I present for the first time a theoretical three-dimensional ovary position in link with the global anatomical structure of each human female body. I advance the fact that ovaries are placed between two anatomical planes: a first plane of a frontal section touching at the top the internal edge of the manubrium sterni and at the bottom the convexity of the lumbar curvature of the spinal column and a second plane of a frontal section touching the two convexities of cervical and lumbar curvatures of the spinal column. Although during and after the first pregnancy ovaries become really slightly displaced they would keep the proposed three-dimensional position. The degree of accuracy of this theoretical position could be evaluated by using special combined techniques of Magnetic Resonance Imaging (MRI). If results will be positive, this finding would represent a new future view in particular fundamental anatomical studies where we will bring out the harmony between an organ position and the global individual anatomical structure.

Key words: theoretical ovary position, three-dimensional position, individual anatomical structure

Introduction

The human body consists of biological systems that consist of organs that consist of tissues that consist of cells and connective tissue. Human anatomy is primarily the scientific study of the morphology of the human body. There are two types of anatomy: gross (macroscopic), and microscopic. Microscopic anatomy is the study of minute anatomical structures on the cellular level. On the other hand gross anatomy, concerning the study of anatomical structures that can be seen by the naked eye, could represent three principal subdivisions of study: surface anatomy, regional anatomy, and systemic anatomy. The latter, focused on a given organ system emphasizing an overview of the system throughout the body and could lead to the study of specific organs. Here I provide a new view on the position of one of the female reproductive system organs, the ovary.

The human ovaries are two ovoid structures situated one on either side of the uterus. Each ovary is suspended in the pelvic peritoneal cavity by the mesovarium, which anchors the ovary to the posterior surface of the broad ligament; the utero-ovarian ligament, which anchors the ovary to the uterus; and the suspensory ligament, which anchors the ovary to the pelvic sidewall (for review see Doherty et al. 2000). The ovaries are of a greyish-pink colour, and present either a smooth or a puckered uneven surface.

The ovaries vary in size depending on age, hormonal status, and the stage of menstrual cycle. The adult ovaries are each about 2.5-5cm in length, 1.5-3cm. in width, and 1-2cm in thickness (Waldroup and Liu, 1991). The normal mean ovarian volume measured with ultrasonography was 9.8 ml. in menstruating women (Cohen et al. 1990). The volume and maximal diameter of ovaries differ significantly with age, but not between the two phases of the menstrual cycle (Hauth et al. 2006). Each ovary presents a lateral and a medial surface, an upper or tubal and a lower or uterine extremity, and an anterior or mesovarion and a posterior free border. In this report I present for the first time a three-dimensional ovary position in link with the global anatomical structure of each human female body.

Presentation of the theoretical finding

Generally the position of different organs is determined by simple description following the anatomical elements surrounded them and such description could be developed and applied in surgical anatomy. Here, I present for the first time a particular theoretical and fundamental description relating to a three-dimensional ovary position in link with large anatomical planes of the individual anatomical general structure of each female body. I have deduced this position from some verses of the Holy Quoran (verses 5, 6 and 7 of the "Sura Ettarek"). In fact these verses as other verses on other scientific subjects represent a dazzling abridgment that I have tried to explain it in my last book (Chaabani, 2006). Although my explanation came after an in-depth study, it remains a mere interpretation that could be correct or unsuitable.

According to this interpretation, as show in the figure 1, ovaries are placed between an anatomical plane 'A' of a frontal section touching at the top the internal edge of the manubrium sterni and at the bottom the convexity of the lumbar curvature of the spinal column and a plane 'B' of a frontal section touching the two convexities of cervical and lumbar curvatures of the spinal column.

Previous descriptions on the ovary position show that in a woman who has not been pregnant, the normal ovary is typically in erect posture and located close to the lateral pelvic sidewall in a shallow peritoneal depression named the *ovarian fossa* (for review see Netter 1954, Thorek 1985). This fossa is bounded above by the external iliac vessels, in front by the obliterated umbilical artery, and behind by the ureter. This typical position is submitted to some change during the first pregnancy after which the ovary becomes slightly displaced and probably never again returns to its original position. Generally the ovary moves forward and probably with slight descent and loss of erect posture: in fact the broad ligament may remain enlarged or elongated and redundant, thus allowing more ovarian mobility (Thorek 1985). In addition the degree of this ovary moving seems slightly variable from woman to another.

This ovaries moving so described agrees with my presented theoretical ovaries position. In fact during the first pregnancy as during the following ones changes in spinal curvature can occur in different degrees from a woman to another and often in the limit of normal interval, namely without reaching pathological situations. This is proved by a recent analysis of spinal curvature demonstrated a tendency for lumbar kyphosis in pregnant women (Okanishi et al. 2012). As shown in the figure 2, changes of the spinal curvature, particularly at the lumber level drive the moving of the two planes A and B. Hence for staying always between the two planes the ovaries must move in the same direction. Namely everything happens as if the variable degree of ovaries moving would depend on the degree of spinal curvature changes, which varies from woman to another.

The degree of accuracy of this theoretical position could be evaluated by using special combined techniques of Magnetic Resonance Imaging (MRI). If results will be positive, this finding would represent a new future view in particular fundamental anatomical studies where we will bring out the harmony between an organ position and the global individual anatomical structure.

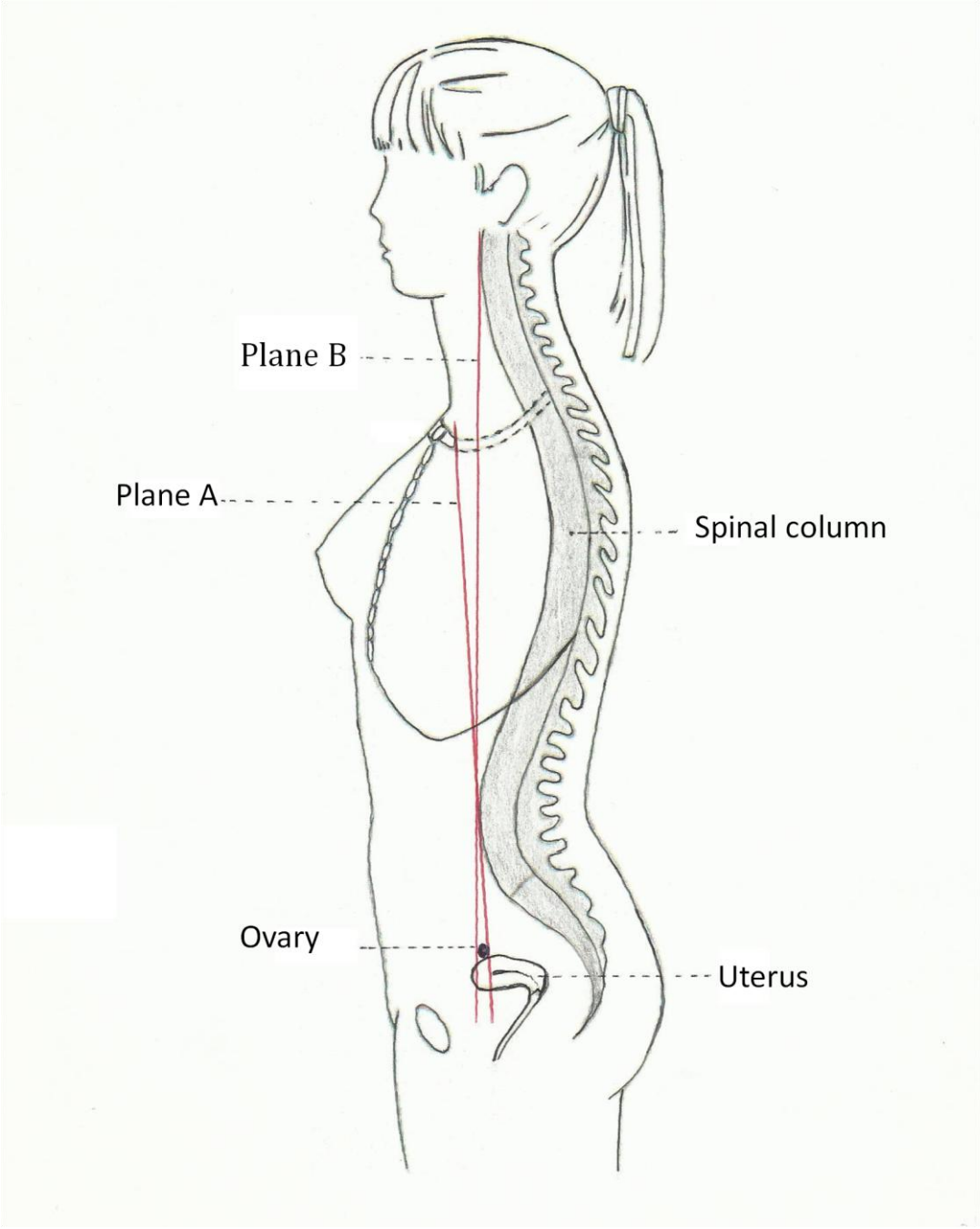

Fig. 1. Diagram of a theoretical three-dimensional ovary position in link with the global anatomical structure of each human female body

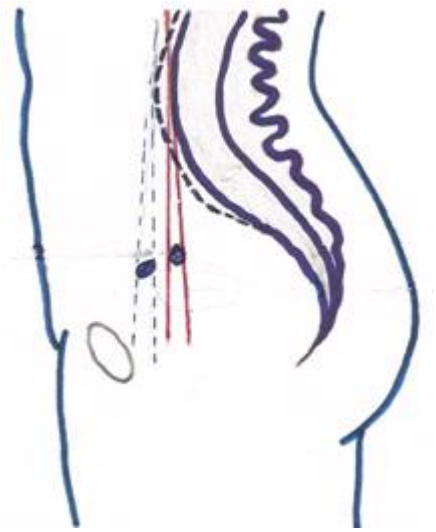

Figure 2. Diagram showing how ovary moves forward with possible slight descent and loss of erect posture at the same time that the lumber spinal curvature slightly curves forwards particularly during the last months of pregnancy

References

Chaabani H. Laws of Human Creation under lights of the Science and the Qu'oran. Les Imprimeries Reunies, **Tunis, 2006,** Tunisia

Cohen H.L., Tice H.M., Mandel F.S., 1990. Ovarian volumes measured by US: bigger than we think. *Radiology* 177: 189-192.

Doherty M.G., Copeland L.J., Powell M.A. Clinical anatomy of the pelvis. In: Copeland L.J., Jarrell J.F., eds. Texbook of gynecology, 2nd. Philadelphia, Pa: Saunders, 2000**,** 17-57.

Hauth E.A., Jaeger H.J., Libera H., Lange S., Forsting M. 2006. Magnetic resonance imaging of the ovaries of healthy women: determination of normal values. *Acta Radiol.* 47(9): 986-92.

Okanishi N., Kito N., Akiyama M, Yamamoto M. 2012. Spinal curvature and characteristics of postural change in pregnant women. *Acta Obstet Gynecol Scand*. 91 (7) : 856-861.

Netter F.H. Normal anatomy uf the female genital tract and its functional relationships. In: Oppenheimer E., eds. The Ciba collection of medical illustrations: reproductive system. Summit, N.J.: Ciba Pharmaceutical, 1954, 89-123.

Thorek P. Pelvic viscera in the female. Anatomy in surgery. 3rd ed. New York, NY: Springer-Verlag, 1985, 596-608.

Waldroup L., Liu J.B. Sonographic anatomy of the female pelvis. In: Berman M.C., eds. Diagnostic medical sonography: obstetrics and gynecology, Philadelphia, Pa: Lippincott, , 1991, 27-69