

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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**Choroidal thickness, Macular thickness and Retinal Nerve
Fiber Layer thickness by OCT in non-pregnant, pregnant
and post menopausal women**

Thesis

**Submitted for partial Fulfillment of Master Degree in
Ophthalmology
by**

Nariman Fathy Mohamed
M.B.B.Ch
Ain Shams University

Prof. Dr. Sherif Zaki Mansour

Professor of Ophthalmology
Faculty of Medicine
Ain Shams University

Prof. Dr. Thanaa Helmy Mohamed

Professor of Ophthalmology
Faculty of Medicine
Ain Shams University

Dr. Hisham Samy Saad-Eldin

Lecturer of Ophthalmology
Faculty of Medicine
Ain Shams University

**Faculty of Medicine
Ain Shams University
2019**

CHOROIDAL THICKNESS, MACULAR THICKNESS , RETINAL NERVE FIBER LAYER THICKNESS BY OCT IN NON-PREGNANT, PREGNANT AND POST MENOPAUSAL WOMEN

Sherif Zaki, Thanaa Helmy, Hisham Samy, Nariman Fathy.

ABSTRACT

PURPOSE:

To evaluate the macular, retinal nerve fiber layer (RNFL) and choroidal thickness alterations by using spectral-domain optical coherence tomography (SD-OCT) in postmenopausal, pregnant and non-pregnant women.

PATIENTS AND METHODS:

A comparative study included a total of 42 eyes (Right eye) of 42 healthy females in the period from march 2019 to September 2019 divided into 3 groups: a) Non pregnant women, b) Pregnant women , c) Postmenopausal women.

Each subject underwent a comprehensive ophthalmologic examination. Following this detailed ophthalmologic examination, the Rs 3000 Nidek Japan OCT device was used for the assessment choroidal, macular and RNFL Thickness.

RESULTS:

The mean age of non-pregnant females was 29.64 ± 3.13 , mean age of pregnant females was 28.93 ± 3.89 and of postmenopausal women was 53.86 ± 1.75 . There was no significant difference in all macular quadrants in the 3 study groups. Choroidal thickness was statistically significant thicker in healthy pregnant females (333.36 ± 44.42) than in healthy non pregnant (326.93 ± 31.50) and significantly thinner in healthy post-menopausal women (282.64 ± 28.04) than healthy non pregnant females. There was no significant difference in RNFL thickness between the 3 study groups.

CONCLUSION:

Oct has evolved over the past decade as one of the most important ancillary tests in ophthalmic practice. Pregnancy hormones may lead to an increase in fluid volume in many tissues of the body. There was no statistically significant difference in macular thickness and RNFL thickness between the 3 study groups. Choroidal thickness was statistically significant thicker in healthy pregnant than in healthy non pregnant and significant thinner in healthy post-menopausal women than healthy non pregnant.

KEY WORDS:

Oct – Pregnancy – Postmenopause - Choroidal Thickness – Macular thickness – RNFL Thickness.

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List of Abbreviations

<i>Abb.</i>	<i>Full term</i>
<i>APR</i>	Anterior prelaminar region
<i>BM</i>	Bruch's membrane
<i>CCT</i>	Central corneal thickness
<i>CNS</i>	Central nervous system
<i>CRA</i>	Central retinal artery
<i>CSF</i>	Central subfield
<i>CST</i>	Central subfield thickness
<i>EDI</i>	Enhanced depth imaging
<i>ETDRS</i>	Early treatment diabetic retinopathy study
<i>FAZ</i>	Foveal avascular zone
<i>FL</i>	Frontal lobe
<i>FT</i>	Foveal thickness
<i>G</i>	Average
<i>GCL</i>	Ganglion cell layer
<i>IIM</i>	Inferior inner macula
<i>IOM</i>	Inferior outer macula
<i>IOP</i>	Intraocular pressure
<i>IRM</i>	Inferior rectus muscle
<i>LC</i>	Lamina cribrosa
<i>LR</i>	Laminar region
<i>MS</i>	Maxillary sinus
<i>N</i>	Nasal
<i>NFL</i>	Nerve fiber layer
<i>Ni</i>	Nasal inferior
<i>NIM</i>	Nasal inner macula
<i>NOM</i>	Nasal outer macula
<i>Ns</i>	Nasal superior
<i>OCT</i>	Optical coherence tomography
<i>ON</i>	Optic nerve
<i>ONH</i>	Optic nerve head

<i>PR</i>	Prelaminar region
<i>RLR</i>	Retrolaminar region
<i>RNFL</i>	Retinal nerve fiber layer
<i>RPC</i>	Radial peripapillary capillary
<i>RPE</i>	Retinal pigment epithelium
<i>SD OCT</i>	Spectral-domain oct
<i>SDOCT</i>	Spectral-domain optical coherence tomography
<i>SIM</i>	Superior inner macula
<i>SNFL</i>	Superficial nerve fiber layer
<i>SOM</i>	Superior outer macula
<i>SRM</i>	Superior rectus muscle
<i>SS OCT</i>	Swept-source oct
<i>TD OCT</i>	Time-domain oct
<i>Ti</i>	Temporal inferior
<i>TIM</i>	Temporal inner macula
<i>TMV</i>	Total macular volume
<i>TOM</i>	Temporal outer macula
<i>Ts</i>	Temporal superior
<i>UEM</i>	Upper eye lid muscle

Introduction

The choroid coats the interior of the fibrous tunic of the eye. It represents the posterior portion of the uvea, the anterior being represented by a thicker region, ciliary zone. The two regions are separated by ora serrata, shaped as a scalloped line.

The macula or macula lutea is an oval-shaped pigmented area near the center of the retina of the human eye . The macula in humans has a diameter of around 5.5 mm and is subdivided into the umbo, foveola, fovea, parafovea, and perifovea areas.(**Yanoff et al., 2014**)

The retinal nerve fiber layer is formed by the expansion of the fibers of the optic nerve; it is thickest near the optic disc, gradually diminishing toward the ora serrata.(**Peyman et al.,2014**)

During pregnancy, periodical hormonal, metabolic, hematologic, vascular, and immunological changes can be observed. Pregnancy hormones may lead to an increase in fluid volume in many tissues of the body. The increase of fluid in the body, especially in the last trimester, may cause an increase of retinal thickness. Pregnancy also can affect preexisting ocular conditions such as diabetic retinopathy, tumors, and immunological disorders.(**Ubica-Trazaska A et al.,2008**)

OCT has been used for retinal examinations in pregnancy in many studies. The macula is especially affected by pregnancy even when healthy – for example, two studies reported infrequent central serous chorioretinopathy in the third trimester in healthy pregnant women.(*Demir M et al.,2011*)

During pregnancy OCT may provide information reflecting the relationship between the retina, subretinal space, and retinal pigment epithelium; it also used for distinguishing retinal edema from serous neurosensory detachment.(*Demir M et al.,2011*)

Menopause is a physiological life period that potentially affects various organs and systems. Menopause is also associated with ocular changes. An increase in the incidence of ocular pathologies and ocular symptoms have been observed during the postmenopausal period. Postmenopausal hormonal status also seems to play a role in these ocular pathologies.(*Ataş M et al., 2014*).