

# OPHTHALMOSCOPY- A USEFUL BUT NEGLECTED SKILL BY THE NON-OPHTHALMOLOGISTS DOCTORS

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## ABSTRACT

**Objectives:** Ophthalmoscopy is considered an integral part of physical examination of patients in many disciplines of medicine. A number of life threatening conditions may be revealed by ophthalmoscopy and hence can be dealt in time. The purpose of this study is to assess the views of hospital doctors on ophthalmoscopy and their ability to examine the ocular fundi and diagnose abnormalities.

**Study design:** A questionnaire based cross-sectional study.

**Setting:** Khyber Teaching Hospital Peshawar, Pakistan, where study lasted from June 2007 to September 2007.

**Patients and Methods:** An indigenous questionnaire was designed and distributed among non-ophthalmologists doctors of different specialties of the hospital. The subjects were asked to rank the frequency of using ophthalmoscope and difficulties facing in using it. A list of common ophthalmoscopic findings was also given in questionnaire and doctors were asked about their recognition using ophthalmoscope.

**Results:** A total of 71 non-ophthalmologist doctors were included in the study. Twenty four (33.8%) belonged to medical and allied specialties, 39 (54.9%) to surgical and allied specialties, six (8.5%) to paediatrics and two (2.8%) to emergency department. Only 28 (39.4%) had ophthalmoscope at their work place, 9 (32%) of which were non functional. Only 14 (19.7%) use ophthalmoscope daily, 26 (36.7%) occasionally and 31 (43.7%) do not use it at all. Only 20 (50%) of the 40 doctors who perform ophthalmoscopy, dilate pupil and the rest do not. Regarding competency of using ophthalmoscope only 22 (31.2%) doctors were confident in ophthalmoscopy, 17 (24%) had difficulty in focusing fundus, 22 (31.2%) had difficulty in recognizing findings and 10 (14.7%) did not know its use. Almost all (96%) mentioned the need of a training course to improve their skill of ophthalmoscopy.

**Keywords:** Ophthalmoscopy, Ocular fundoscopy, pupillary dilatation

## INTRODUCTION

Eye examination skills are taught at medical schools, assessed at university examinations and practiced in all medical and surgical disciplines. Ophthalmic examination by non-specialist includes testing visual acuities and performing ophthalmoscopy.

Ophthalmoscopy (ocular fundoscopy) has traditionally been considered an integral part of physical examination of patients in many disciplines of medicine including internal medicine, family medicine, paediatrics, neurology and neurosurgery. Life-threatening conditions such as raised intracranial pressure, millitary tuberculosis, and cytomegalovirus infection may be revealed by ophthalmoscopy<sup>1</sup>.

In patients with diabetes mellitus, regular ophthalmoscopic examination is mandatory to screen for diabetic retinopathy as visual loss due to diabetes can be prevented by retinal laser treatment if retinopathy spotted early. In arterial hypertension, hypertensive changes in the retina closely mimic those in the brain and may predict cerebro vascular accidents. In children, early detection and prompt treatment of ocular disorders is important to avoid permanent visual impairment<sup>2</sup>. Direct ophthalmoscope is undoubtedly the most practical instrument available to a physician for ophthalmic examination<sup>3</sup>.

With increasing workload for doctors, routine fundoscopy may be abandoned. It is not known how often doctors, other than ophthalmologists, perform fundoscopies or how skilled they are in performing them. The purpose of this study is to assess the views of hospital doctors on ophthalmoscopy and their

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ability to examine the ocular fundi and diagnose abnormalities using ophthalmoscope.

## **MATERIAL AND METHODS**

This questionnaire based cross-sectional study was performed in a university hospital, (Khyber Teaching Hospital, Peshawar, Pakistan) from June 2007 to September 2007.

An indigenous questionnaire was designed by the author (IH). The frequency and proportion rating scales used in this questionnaire were easy to administer and simple to score. The questionnaire was distributed among non-ophthalmologist doctors of the hospital in medical, surgical, paediatric and emergency department. Doctors of orthopaedic and skin department were excluded from study because they felt that they do not need ophthalmoscopy. House officers were also excluded. In this study the subjects were asked to rank the frequency of using ophthalmoscope and difficulties facing in using it. A list of common abnormal ophthalmoscopic findings including papilloedema, hemorrhages, soft exudates, hard exudates, macular edema and retinal detachment was given in the questionnaire and doctors were asked about their recognition using ophthalmoscope.

Data compiled using software "SPSS Version 10" and results obtained.

## **RESULTS**

A total of 71 non-ophthalmologist doctors were included in the study. Twenty four (33.8%) belonged to medical and allied specialties, 39 (54.9%) to surgical and allied specialties, six (8.5%) to paediatrics and two (2.8%) to emergency department (Figure).

Among the doctors 23 (32.4%) were consultants, 10 (14.1%) were medical officers (also working as General Practitioners in private practice) and 38 (53.5%) were trainee registrars. Only 28 (39.4%) had ophthalmoscope at their work place, 9 (32%) of which were non functional.

Frequency of use of ophthalmoscope by the subjects in practice is shown in Table-I.

Only 20 (50%) of the 40 doctors who perform ophthalmoscopy, dilate pupil and the

rest do not. Reasons for not dilating the pupil include non-availability of dilating drops in wards in 7 out of 40 respondents (17.5%) and risk of side effects especially precipitation of angle closure glaucoma in 13 (32.5%).

Competency of using ophthalmoscope is shown in Table-II

Frequency of recognition of common abnormal findings by the doctors is shown in Table-III.

Regarding Teaching and training of ophthalmoscopy, 43 (60.6%) doctors learned the skills at medical school, 18 (25.4%) at fellowship and only 5 (7%) attended special course on the subject. The remaining 5 (7%) did not respond to this question. Almost all (96%) mentioned the need of a training course to improve their skill of ophthalmoscopy.

## **DISCUSSION:**

Although direct ophthalmoscopy is a useful tool for diagnosis and ultimate management of many ocular and systemic diseases, it is not effectively used by the doctors.

In this study only 19.7% non-ophthalmologists doctors use it in their daily practice, 36.7% use occasionally and 43.7% don't use it at all. In a study by GS Ang and Dhillon B. on Junior House Officers, 18.5% perform ophthalmoscopy daily, 24.6% weekly, 33.8% monthly and 23.1% occasionally<sup>4</sup>. In a study by Roberts et al, reviewing of charts of 100 patients treated by physicians disclosed that only three had fundus examination reported<sup>5</sup>. Similar results were reported from survey done in Australia<sup>6</sup>.

In our study only 39.4% doctors had ophthalmoscope at their work place, one third of which were non-functional. This is a common hurdle in many set ups. In above mentioned study by GS Ang and B. Dhillon in a Scottish University Hospital 66% Junior House Officer were certain that working ophthalmoscope was present in the Ward, 20% were certain that there was not and 13.8% were unsure of the presence of a working ophthalmoscope<sup>4</sup>. One of the reasons not using it could be non-availability of the instrument.

Regarding competency in using ophthalmoscope, only 31.7% doctors in our study, considered themselves confident in this skill. About 14.7% don't know the skill at all and rest i.e. 55.2% had difficulties in focusing retina and recognizing findings. These results are not too different from other similar international studies. In a study from United Kingdom on 41 general practitioners, sixty six percent of the respondents did not feel confident with their skills in performing a fundus examination<sup>5</sup>.

In a study from Israel in which hospital pediatricians' ability to diagnose abnormalities of ocular fundi was assessed, mean score for the fundus pictures quiz was 48%<sup>1</sup>. This excludes the difficulties of using ophthalmoscope on live patients. Similarly in above mentioned study by GS Ang majority of Junior House Officers (56.9%) did not carry ophthalmoscopy as routine because of multiple reasons, one of those is lack of confidence in using this skill<sup>4</sup>.

In a study from Canada ability of non-ophthalmologists to diagnose retinal haemorrhages was examined. A fairly large number (36%) of respondents did not attempt to examine followed by those who were unable to examine (19%) the fundus in 72 children with shaken baby syndrome. A significant number (13%) of respondents missed the retinal haemorrhages when fundus was examined<sup>7</sup>.

Fifty percent of doctors, who perform ophthalmoscopy in our study, do not dilate pupil, the reason being nonavailability of dilating drops or risk of its side effects. There is no doubt that diagnostic yield is increased by ophthalmoscopy through dilated pupil. In a study by Seigle BS et al 32% of posterior pole anomalies were missed during ophthalmoscopy through undilated pupil<sup>8</sup>. Another study mentions that sensitivity of fundoscopy through a dilated pupil for detecting diabetic retinopathy is twice as high as detection through an undilated pupil<sup>9</sup>. Common reason for not dilating pupil is concern about the risk of precipitating acute angle closure glaucoma. Recent population based studies indicate that this risk is extremely low. In Rotterdam study of 6760 people, routine use of mydriatic eye

drops in all participants aged 55 and over precipitated acute angle closure glaucoma in only two (0.03%) individuals<sup>10</sup>. The Baltimore eye survey of 4870 people found no cases of acute angle closure glaucoma precipitated by mydriatics<sup>11</sup>. On basis of this discussion we strongly recommend the dilatation of pupil before ophthalmoscopy. However patient should certainly be warned to seek medical attention if symptoms of acute angle closure glaucoma (red painful eye, blurry vision, nausea and vomiting) occur<sup>12</sup>.

As far as teaching and training aspect is concerned, a large proportion of doctors (60.6%) in our study learned this skill in medical school. Unfortunately specific formal instruction in ocular funduscopy is rarely given to medical students<sup>13</sup>. As a result of limited ophthalmology education in medical schools and primary care residency programmes, medical students and primary care residents are inadequately trained to deal with even the most basic ophthalmic problems<sup>14,15</sup>. This decline is not limited to ophthalmic knowledge; Lippa et al recently described a "worrisome erosion" in medical students' eye examination skills<sup>16</sup>. According to another study from Australia by Jackson C et al<sup>5</sup>, little formal eye skills training has historically been available to Australian general practitioners at undergraduate or postgraduate levels. In that they had inadequate training for ophthalmoscopy. This shows that lack of adequate training at under graduate and postgraduate level could be the main reason that doctors are not skilled in ophthalmoscopy and hence they don't practice it.

## CONCLUSION

This study shows that ophthalmoscopy is being neglected by general doctors. Every skill that is not practiced is lost. The same is sadly, true for ophthalmoscopy. Major reasons for not using this useful tool include lack of required skill, lack of initiative to do ophthalmoscopy and put the entire responsibility on shoulders of ophthalmologists and non-availability of working ophthalmoscopes at work place. The issue of training and encouragement to perform

ophthalmoscopy needs to be addressed before it becomes a forgotten art.

## LIMITATIONS

It is accepted that experience and practice regarding ophthalmoscopy of doctors from medicine and allied specialties may be different from those of surgical and allied specialties. This study did not examine such a difference. Also, since majority of the doctors included in the study were graduates from one medical school, i.e. Khyber Medical College, Peshawar, Pakistan, a valid comparison could not be made with graduates of other medical schools.

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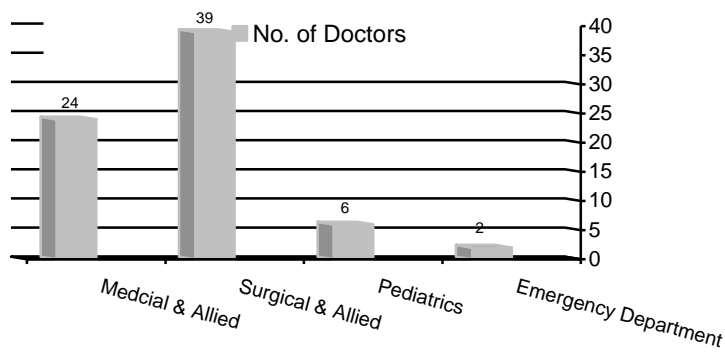


Figure-1: Number of Doctors from different specialties

**Table-I:** Frequency of using ophthalmoscope by the respondents

Use of Ophthalmoscope	Frequency
Daily	14 (19.7%)
Once a week	06 (8.5%)
Occasionally	20 (28.2%)
Don't use	31 (43.7%)
<b>Total</b>	<b>71 (100 %)</b>

**Table-II:** Competency of performing ophthalmoscopy by the doctors

Problem	Frequency
Don't know use of Ophthalmoscope	10 (14.7%)
Difficulty in focusing fundus	17 (24%)
Difficulty in recognizing findings	22 (31.2%)
Confidence in ophthalmoscopy	22 (31.7%)
<b>Total</b>	<b>71 (100 %)</b>

**Table-III:** Frequency of detecting abnormal fundus findings by the doctors  
(Percentage total is more than 100 because many respondents gave multiple responses)

Abnormal findings	Frequency
Papilloedema	45 (63.4%)
Retinal Hemorrhages	49 (69%)
Soft exudates	29 (40.8%)
Hard exudates	29 (40.8%)
Macular edema	08 (11.3 %)
Retinal detachment	08 (11.3%)