A senior research project: Research assistant - ocular disease & special testing

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Abstract
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A SENIOR RESEARCH PROJECT:
RESEARCH ASSISTANT- OCULAR DISEASE & SPECIAL TESTING

PACIFIC UNIVERSITY COLLEGE OF OPTOMETRY
FOREST GROVE, OREGON
MAY 9, 1986

BY MICHAEL MILLSAP
At the beginning of this project goals were set to define an area of optometry in which I felt both fascinated as well as intimidated by - ocular disease. The goals as submitted in the research description were as follows:

I. Become knowledgeable and competent in treatment and management of disease and anomalies falling within the legal scope of optometry. To become proficient in the use of BIO, MIO, gonioscopy and special testing procedures such as ultrasound, photography, and visual fields.

II. To develop an understanding of ophthalmological theory and practice so that:
   1.) My communications with that profession are respected.
   2.) I may accurately inform my patients of the medical approaches to certain ocular problems.

The attempt to realize these goals took place in the Ocular Disease and Special Testing Clinic and General Clinic at Pacific University. As of May 7, 1986 over 120 hours has been logged in the ODST clinic. Some of these hours were spent attending and assisting in Dr. Carole Timpone’s Advanced Procedures class. The bulk was spent in the clinic.

In the Advanced Procedures course a wide variety of topics were covered. At least one lab and lecture was devoted to ocular emergency. This includes foreign body removal, irrigation, chemical burns, blowout fractures and sports injuries. Emphasis was placed on when to treat versus when to refer. Several hours were devoted to glaucoma diagnosis and treatment. Extensive coverage was given to visual fields for purposes of detection and following a field loss. Advantages and disadvantages of Goldmann versus automated (Humphrey) perimetry were made evident. More hands on experience with gonioscopy was provided in at least one lab period. Chemical Screening was discussed as presented by Diane Yolton and Bobbie Dirks in a continuing education course.

Additional practicing of techniques with the BIO, Goldman three-mirror lens, Hruby lens, and Volk 90 diopter lens added immensely to the clinical competence of everyone involved. Fluorescein angiography, bruits, temporal arteritis, branch vein occlusion, anterior ischemic optic neuropathy, pseudotumor cerebri and other posterior pathology were discussed as well.

In the ODST clinic time was initially becoming familiar with the facility. The first instrument encountered was the Humphrey Field Analyzer. Next was the mydriatic fundus camera, anterior segment camera, and the ultrasound. These instruments while rather intimidating at first glance, can be a source of information that gives a definite advantage to the optometrist over more conventional methods. Automated perimetry offers a sensitive evaluation of the visual field that can be stored in the computer and manipulated by the practitioner if necessary to compare findings over time. Photography is quickly becoming a part of more and more
optometric practices as equipment prices go down. It doesn’t
take long to realize the advantage of photodocumentation over
sketched fundus drawings once you have taken some pictures.
A more costly item, but invaluable to the path oriented
optometrist is the ultrasound. The unit in ODST contains A-
scan and B-scan for analysis of orbital structure and even
precise measurement of orbital components.
Without the benefit of some of this equipment combined
with the clinical expertise of the ODST staff a large volume
of essential clinical education would be lost. For example:
P.C., a middle aged white male presented with two diopters of
unilateral aquired hyperopia of recent onset. Direct fundus
examination revealed fine horizontal striations at the
posterior pole. Contact Hruby lens revealed slight papil-
ledema with elevation of the adjacent fundus. Stereo vector
pictures were taken which documented nicely the extent of the
elevation for future comparison. B-scan revealed a relative
flattening of the back of the globe. A diagnosis of Aquired
Hyperopia with Choroidal Folds was made. This condition
may be idiopathic, but more often signals the presence of
a retro-bulbar tumor. Fortunately the CT scan was negative
and the possibi

G.H., an elderly white male with Primary Open Angle
Glaucoma is currently on drug therapy to control his
pressures. On a visit to the clinic to "strengthen his glasses", visual fields were performed to monitor any change.
The findings indicated there was a reduced field compared to
what he had on his previous visit as well as an increase in
cupping. He was referred back to the ophthalmologist for re-
evaluation of therapy.

M.H., a first year optometry student presented to the
ODST clinic with a unilateral blink. Further examination
revealed inability to close his right eye completely,
epiphora, and a general paresis of the right side of the
face. V.A.S, exophthalmometry, pupillary responses were
normal. A diagnosis of Bell’s Palsy was made. The patient
was given supportive therapy consisting of lacrilube, and
patching materials for sleeping so corneal dessication would
be prevented. The patient was followed until symptoms
subsided.

The examples above are patients that were seen in the
ODST clinic. They can be found in most any text book on
ocular pathology. The important difference is this: text-
book learning is passive and lacks the immediate
reinforcement found in the clinical setting.

This year in ODST has proven to me how important the
"active" learning process is to clinical diagnosis. There is
an exciting challenge involved in adding up facts and making
that diagnosis or providing treatment. Now someone depends
on my ability.

My first goal of this project: To become knowledgeable
and competent in the treatment and management of ocular
disease-- should have perhaps been described as more of
a longer term goal. The more time I spent in ODST, the more
I began to realize this goal may take longer than initially realized. Maybe it is the quality of my instruction that makes the goal look tougher to attain. Dr. Timpone has been an inspiration and a boost to my clinical confidence and has shaped my perception of Ocular Disease in a very positive way.