

WE OPEN A CASE BOOK
ON
THE LIVER AND BILIARY PASSAGES
IN VISUAL GERIATRICS

by
DONALD J MAYER, O.D., F.C.S.O

PREFACE

There is a great paucity of information regarding the effect of senescence upon the liver and biliary passages. There is no organ or system of organs that so tenaciously clings to normal function as the liver and associated biliary passages. Mann and Magath showed in animal experimentation that four-fifths of the liver can be removed before impaired liver function can be demonstrated by the ordinary liver function tests. He also recalls the extraordinary ability of the liver to regenerate, a fact known for years.

In spite of the physiological decreases in weight that occurs as age advances, the functional activity of the human liver does not decrease as we grow older, nor is there any conspicuous lessening in the evacuating ability of the gall bladder in the senescent. It is highly probable that senile liver cells possess a greater degree of resistance to hepatotoxic specialists doing Visual Geriatrics is the fact that the vitamin C content of the liver decreases as the individual's age increases.

In my paper presented to the Visual Geriatric Society last year, I stressed the great value of laboratory tests and findings in the practice of visual geriatrics. Let us now discuss the two laboratory tests I believe to be of greatest value in liver and biliary disorders as associated with ocular disturbances.

The "Icterus Index" in blood chemistry measures the amount of bilirubin (orange pigment in bile) in blood serum. The normal bilirubin in 100 CC of blood serum is .1 to .125 Mg. This test is purely qualitative, giving only the normal, an excess of, or a subnormal amount of bilirubin. If the icterus index is high (above normal), it is due to one of three causes:

1. Blockage of excretory duct of liver.
2. Failure of polygonal cells of the liver to perform their function, which is the formation of bile from the blood, such as occurs in cancer, and hepatitis (acute and chronic).
3. Actual break down of blood cells as in the anemias.

Now consider the Van den Bergh test for bilirubin in blood serums. This laboratory test is a quantitative icterus index, direct and indirect. In the direct action test the bilirubin is in a water soluble state and is found in urine, and when mixed with reagents gives an immediate and positive reaction. Direct reaction in this Van den Bergh is characteristic of obstructive type of jaundice, as in the first condition commented on above, and sometimes in the second condition.

The indirect reaction in the Van den Bergh (delayed action), is characteristic of the third condition. We know that in cases where there is a definite increase of non-soluble bilirubin in the blood

serum due to a blood cell breakdown accompanied with a liver cell failure, this combination would give a direct Van den Bergh

Within the present month, while addressing a large optometric group, I found that most of the group know very little of the interpretation of certain laboratory findings which definitely are a part of optometric practice. This society of optometric specialists doing research in the field of Visual Geriatrics must be familiar with laboratory tests and findings in the general health field, in order that we may more intelligently secure proper cooperation with the physician in caring for the geriatric patient.

Another important etiological factor in impaired biliary drainage and the formation of gall stones are infections and inflammations of the upper gastro-intestinal tract.

In colon X-ray there is a most definite liver biliary reflex which seems a positive diagnostic factor of impaired biliary drainage. Further, colon therapy aids in correcting this impairment.

CASE 1. Mrs. M.T. age 65, - Referred to this office Oct 28, 1946. Patient had blind spells and diminishing vision. Patient appeared to have all symptoms of glaucoma, both according to case history as told to me, and also according to history of case as recorded by physician referring patient.

Medical case history will be omitted other than patient had been recumbent and under opiates for a number of months before becoming a patient of Dr. Van Etten.

General examination and medical diagnosis can briefly be recapitulated. Enlarged gall bladder, X-ray reveals slow emptying time, but no stones. Quantitative Van den Bergh 3.75 Mg. per cent. Uterine strictures.

Treatment and case management.

Chologogue with each meal. Calcium gluconate; Vit. B complex IV. Dilated uterus (cystoscopic work). Result – Patient is leading a normal life and feels well.
Van den Bergh as of March '47, .087 Mg. percent.
Patient must have this continuous geriatric health care.

At a meeting of this society in February of this year, I reported on this case, giving optometric diagnosis and showing field studies, explaining the Roenne Step and also the Seidel Sign of scotoma.

The fields for form and motion on the horizontal plane showed large blind areas, central vision was poor – 20/40. Proper syntonic orthoptics and case management has given this patient 20/20 5 central vision. Her reading and distance vision both have increased about 30 per cent or more.

Emotional stress, such as anger, irritation and excitement, tends, occasionally, to bring on another blind spell. Syntonic orthoptics brings about complete recovery of central vision.

If visual geriatric care is continuous, with only short rest periods, then the ocular prognosis at best is only fair. The patient's general health is in a precarious condition, a change for the worse would immediately effect the ocular condition.

To understand better the visual geriatrics care of the above case and the several cases to follow, let us consider the innervation of the biliary system. The nerve supply to the liver is derived through the coeliac plexus, the vagi and phrenic plexus. The majority of the nerve fibers distributed to the biliary system are sympathetic in origin and reach the hepatic portal through the coeliac plexus (Kuntz – 1934). The right division of the vagus goes to the liver, while the phrenic nerve supplies branches to the liver only after anastomosing with sympathetic nerves.

In general, the musculature of the biliary system responds to stimulation of the parasympathic and sympathetic in the same manner as the musculature of the gastro-intestinal tract, (Mayer, Visual Geriatrics Seminar, 1946).

Although Lunberg (1931) showed by denervation of the liver that a nervous mechanism is not essential in regulation of bile, the sympathetic nerves exert an inhibitory influence on bile secretion.

Boyden and Birch (1930) demonstrated the existence of reflex pathways between gastro-intestinal tract and the gall bladder. This further showed that dysfunction of the gall bladder, or biliary stasis, may in some cases be due to a chronically affected (diseased, etc) digestive tube.

Disturbances of the biliary system, especially gall bladder disease, may give rise to afferent impulses (central nervous system) which result in reflex vomiting, tachycardia, regional purities, perspiration, dyspnea, salivation or inhibition of salivary secretion, and pupillary disturbances. (Kuntz).

Likewise, influences of the central nervous system profoundly affect the biliary system, a fact that is well known. Strong emotional disturbances, e.g. rage or fright, may give rise to a temporary icterus.

CASE 2. Mrs. M.G., age 62, referred to this office Aug. 12, 1946. Gall bladder removed eight years ago, but some severe colic pain several times weekly as before surgery. Daily enema (a must). Eyes uncomfortable all the time, eyes pain and have been bad for a number of years. Fear of cataract because of diminished vision, etc.

Blood pressure 80/60.

In close cooperation with Dr. Van Etten, this patient has been greatly helped and now leads a comfortable, normal life.

Dr. Van Etten's diagnosis will not be given, other than the Van den Bergh of 4.16 Mg. per cent. Medical treatment consists of chologogue with meals. Suprarenal cortex and vitamin therapy hypodermoclysis. Oral vitamin therapy causes nausea.

Syntonics, using short wave frequencies and procedure to increase power of convergence, and speed of vision.

Blood pressure now 110/80. Comfortable and normal vision. Patient under Visual Geriatric and general geriatric health care. Prognosis very good.

CASE 3. Mrs. R.E.G., age 74, referred by physician to this office, Jan. 27, 1947, Cholecystitis now, eyes smart, burn and feel full. Vision poor and can't see to read, hazy vision. Patient has had splendid geriatric health care by Dr. Gallbraith. His report can be summed up as a diagnosis of non-filling and non-emptying gall bladder.

Result of general geriatric care. Patient is now, June 1947, free from pain, gas, dizziness and distention. Digestion good, elimination good, happy, normal life.

Optometric Diagnosis –

Faulty circulation within the eye, slight lenticular opacities, diplopia for all near point findings. Vision low at distance 20/30.

Case Management.

Syntonics – short wave frequencies and orthoptics to coordinate motor control of eyes and give a convergence reserve. No change in lenses.

Result.

Vision clear and normal, patient can read in comfort as often as desired. Vision comfortable at all distances. Observation or progress report every four months to give visual geriatric control. Prognosis excellent.

CASE 4. Mrs. J.C.A. Age 71. Referred to this office by physician 4/10/47. Ptosis of left upper lid, a form of edematous inflammation around left eye. Edema so severe in morning that on awakening the eye must be bathed open. Poor vision at distance and near, and not helped by glasses. Very little vision in left eye. She is aware of haziness and dimness as a film over right eye. Believes she has cataract.

Because of the history of gall bladder trouble for years, the report of the physician and surgeon is given in full.

Patient – J.C.A. Age 71.

Complaint –

Numbness and dead feeling in left arm and hand. Muscles becoming smaller. Pain and soreness over right upper abdomen, with severe gas, indigestion and severe constipation.

History –

Gall bladder attacks for years. Abdominal abscesses following childbirth (surgery performed). Erysipelas, facial, left side of face.

Physical Findings.-

Pain and tenderness elicited over upper right quadrant of abdomen. Umbilical hernia present. Adhesions to old abdominal scr. Atrophy of left arm and hand. Chronic cholecystitis with adhesions.

Treatment. –

Surgery – adhesions freed between colon and belly wall. Gall bladder freed from adhesions to colon. Repaired umbilical hernia.

Results – Digestion and elimination improved but not completely clear. Pain and soreness over abdomen alleviated. No change in other conditions present.

Now the optometric analysis.-

Cataract O.U. both cortical (segment type and genera;). Ophthalmoscopy. Negative. Chromographs, little or no green fields, showing focal infection. All fields contracted for chroma.

Form and motion fields contracted. O.D. 20/80 vision. O.S. dot and line vision only, Ives. Skiametry at distances and near revealed no change in lenses needed. Symptoms and resultant ocular condition caused by cholecystitis or general health condition.

Syntonic program outlined and after twenty treatments or applications great improvement in eye condition is found. Ptosis about seventy five per cent alleviated. Holds left eye open easily. While erysipelas has left the side of the face with thickened and discolored skin, all edema has disappeared. Vision at distance and near much better.

Case management.-

Syntonic care to be continued. Results satisfactory.

SUMMARY

1. All biliary system disorders seem to have an associated pattern of ocular findings of value in visual geriatric care.

2. The chromographs show all fields contracted. The green field into about five degrees (infection type), red and blue fields small, but blue contracted more in vertical meridian (abdominal toxemia).

The form and motion fields are contracted, and often we find an enlarged blind spot. Many times scotoma develops as in cases of intraocular tension.

3. There is faulty calcium-lime metabolism and a decrease in Vitamin C in the geriatric patient. The diet in biliary system disorders of the senescent should be high in carbohydrates, low in proteins and fats. Vitamin B are indicated as nutritional supplements. When abnormal bleeding exists, a fat soluble Vitamin K is useful. The tendency to constipation should be overcome.

4. Ophthalmoscopically, a disturbance in circulation within the eye is often manifested and lenticular opacities are many times present, also vitreous opacities are occasionally seen.

5. Because the autonomic nervous system controls the musculature of the biliary system, and the sympathetic nerves exert an inhibitory effect or influence on bile secretion, stimulation of the parasympathetic always seems to aid ocular dysfunction as an associated health problem.

This means the short wave syntonic frequencies are in order in syntonic orthoptics, although in edematous lid conditions some stimulation is obvious (such as mu-delta frequencies).

6. Worry causes many ills. Emotional instability makes worse existing conditions of ocular dysfunction, as well as causing some of the most pronounced symptoms of intraocular tension. Therefore, the psychosomatic aspect of care in Visual Geriatrics is important, and very much so in liver – biliary system disorders, for these patients are mentally depressed .. (unreadable) feel low.

Although only four cases are covered in this paper, I have found a pattern of likeness in many of these biliary system disorders. It is a field of profitable future research in Visual Geriatrics, and always harmonious cooperation of the physician is an absolute necessity.

Donald J. Mayer, O.D., F.C.S.O., F.B.O.P (Hon.) London
Riverside, California
6123 Magnolia Ave.

Presented before the Visual Geriatric Seminar 1947.
Hotel Huntington, Pasadena.