ISHIHARA TABLES: COMPARISON OF THE NINTH AND TENTH EDITIONS

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The assessment of the quality of isochromatic tables can only be empirical. Since their principal use, however, is for the detection of grossly colour-defective individuals who, by confusing red and green, are a danger to, and endangered by, modern traffic, a merely superficial test may provide a sufficiently valid result. But when a detailed answer is desirable, as when a certain amount of colour confusion can be tolerated, it will be found that clear-cut answers are obtained but rarely.

Criterion for Comparison

In the comparison of two different editions of the Ishihara tables it is necessary to test a given patient with both sets of tables in a random order so that the effect of memory becomes unimportant. Some sort of criterion must obviously be developed in order to evaluate the answers numerically. In the present instance, adequacy (A) and inconsistency (I), which are defined below, were chosen to compare the ninth and tenth editions of the Ishihara tables. All tables show at least one figure which the patient can or cannot read according to his colour vision. Some of them provide an alternative reading: thus Table 4 is designed to elicit the answer 29 or 70. If neither of these answers is given, and the patient reads 20 or 79 or any other number, this is considered to be a failure (F). The total number of F is subtracted from the number of tables (24, if the sample No. 1 is omitted) to yield the adequacy, A.

In itself, however, the adequacy is not a sufficient criterion. It may happen that the patient is diagnosed as normal following one table, red-green blind following another, and totally colour-blind according to a third. Again, another man may be completely red-blind by Table 22 and completely green-blind according to Table 24. Such diagnoses are not self-consistent. If, for example, the first patient gives six "normal" replies, then there are six inconsistencies ($I=6$), since if he were normal he would have shown it more than six times. Similarly, in the second case $I=1$, as one of the answers is unsuitable for an adequate diagnosis. A perfected diagnosis consequently requires $A=24$, and $I=0$ —that is, all the answers must have been foreseen by the author and the 24 separate diagnoses must not contradict each other. The theoretical reason behind values of A different from 24 and values of I larger than 0 is that most colour defects are of an intermediate nature—that is, the patients are neither completely red-blind nor completely green-blind—and it is impossible to design a set of tables all of which would detect the defect. There are, moreover, individual variations in the spectral sensitivity which vitiate any attempt to standardize the tables in detail.

Results

In the present test, standard illuminating conditions were observed and 10 subjects examined. Of these, No. 1 was normal, No. 3 a deuteranope, and No. 5 totally colour-blind (a cone-monochromat, v.i.). The other defects were not identified. Patients 9 and 10, who do not occur in the accompanying Table, were also cone-monochromats and could not read any of the tables except the first. The results obtained were as shown in the Table.

The two editions thus provide equally self-consistent answers, but the later set appear to be more adequate. It is uncertain whether the difference in this respect is statistically significant.

Patient	Adequacy		Inconsistency	
	9th Ed.	10th Ed.	9th Ed.	10th Ed.
1	24	24	0	0
2	16	11	4	7
3	21	20	0	0
4	18	18	1	2
5	18	18	1	1
6	17	20	1	0
7	15	21	7	6
8	18	18	2	0
	147 (76%)	150 (78%)	16	16

Both sets of tables seem inadequate for the detection of total colour-blindness. If the patient suffers from rod-monochromatism an Ishihara test is generally superfluous because he will probably suffer also from photophobia, nystagmus, and reduced visual acuity. But such patients (not listed above) were not found to follow the Ishihara key: they were invariably successful with Tables 6 to 9. The reason for this is no doubt that the rod-monochromat's sensation of light is limited to the response mediated by the rods: this will allow blue-green figures on a background, isochromatic for the normal photopic sensitivity, to stand out as light numbers on a dark background. Although patients 9 and 10 failed on every table, patient 5 would not have been detected as being totally colour-blind had more reliable tests not been available. Again, another patient who would have been classed as totally colour-blind on the strength of the tables was found to be a protanope when tested more severely. These findings reaffirm the opinion that the Ishihara tables can be relied on to discover red-green defects: as regards total colour-blindness, however, the reliability of the answers they provide is much less.

Medical Memoranda

Congenital Syphilis of the Lungs

The following case of what is now a rare disease is reported because, despite knowledge of all the significant facts, difficulty was experienced in establishing the true nature of the lesions.

CASE REPORT

A woman aged 26 gave birth to a stillborn female infant. The mother alleged that the infant had been born some five weeks prematurely. She had had a miscarriage four and a half months after her marriage, but since that time had had one normal pregnancy and no further miscarriages. Prior to her confinement she had not attended an antenatal clinic, and it was only after the post-mortem examination on the infant had been completed that it was discovered that both the mother and father had positive Wassermann and Kahn reactions. There was no significant family history.

Post-mortem Findings.—The body was that of a female infant of 5 lb. 11 oz. (2.68 kg.) and apparently full maturity. There was gross oedema of the face, chest wall, and neck. A quantity of clear straw-coloured fluid was found in the pericardial sac. The heart was normal in structure and size. The ductus arteriosus and the foramen ovale were patent, the latter being very large and showing no valve. Both pleural cavities were full of clear straw-coloured fluid. Both lungs were atelectatic, and scattered throughout their substance were numerous globular tumours varying from about 2 mm. to 1 cm. in diameter. These tumours were yellowish white in colour, and, on section, rubbery and uniform in consistency. A number of the more superficial tumours caused bulging of the lung surface, and were quite sharply defined. The only other abnormalities discovered

were clear straw-coloured fluid in the peritoneal cavity, gross oedema of the brain, and suprarenals which were smaller than usual.

Histology.—Liver: numerous spirochaetes were seen, but the usual unicellular fibrosis was absent. Portal fibrosis, oedema, and excessive haemopoiesis were present. Pancreas, placenta, and kidneys: these appeared to be normal. Lungs: considerable numbers of spirochaetes were present in both the tumour and the non-tumour areas. A chronic interstitial pneumonia was present. In the nodules of solid tissue the bronchi showed up well and in some places the alveoli were lined with cubical epithelium.

COMMENT

The gross lesions in this case of congenital syphilis were exclusively in the lungs. Although microscopically spirochaetes were found in the liver the reaction to them appeared to be minimal in this organ. The gross lesions found at necropsy and the H. and E. sections presented a puzzling picture, and it was only the presence of spirochaetes in the sections stained by Levaditi's method which finally established the diagnosis.

The classical diffuse pneumonia alba was absent, and reference to numerous modern textbooks of pathology gave little information on discrete congenital syphilitic lesions in the lungs; they usually confined themselves to such remarks as, "Gummata may occur." The histological appearances of the tumours in this case were not those of gummata. It would seem that this form of congenital syphilitic lesion of the lungs is now so rare as not to merit description, in the standard textbook at least. However, on reading the older textbooks it is obvious that such lesions as have been described here were frequently seen by the pathologists of former days. An example of their descriptions, which tally in almost all respects with the lesions here recorded, may be quoted (Lancereaux, 1869): "The pathological product in the lungs always showed itself in the form of tumours, more or less numerous, of the size of a pea or a walnut, and these tumours were perfectly circumscribed, firm or softened at their centre and usually of a yellowish colour." Syphilis is still capable of presenting atypical lesions, and its presence must always be borne in mind when unusual pathology is encountered.

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REFERENCE

Lancereaux, E. (1869). *A Treatise on Syphilis*, 2, 160. London.

A Finger Bud

I first saw the patient, a man aged 59, warming his hands by an old-fashioned grate, fingers outstretched, with the red glow of the fire showing through them. After a pause he saw me counting and proceeded to give the following story.

The swelling started, without pain, as a small pink, smooth elevation of the skin. He has no remembrance of injury. It grew slowly, and a long time passed before it became an embarrassment to him at whist drives, before all of which he would ask his wife to bandage the finger. Finally, the point was reached when his social life was jeopardized and he determined to be rid of it. Various suggestions made by his workmates were acted on. First, he rubbed it down regularly with the business edge of a matchbox. Next he plucked a hair from a horse's tail (there is a drayman's yard of a local brewery near by) and tied it round the base of the offending swelling. Finally, acting on the advice of his 90-year-old mother-in-law, he buried a part of the meat ration (beef) at the bottom of his garden and awaited results.

One day, while the swelling was still fairly small, he accidentally cut it at its base with the edge of a tin. It bled

only a little, but afterwards its growth was fairly rapid, and it took on the angle shown in the photograph. By the time he came to the surgery (June, 1951) he had had the appendage for 10 years.

On examination the swelling was a little more than an inch (2.5 cm.) long, solid, and sausage-shaped. It was attached to the volar aspect of the middle finger, near the distal interphalangeal joint. The skin crease of that joint was obliterated, and the middle segment of the finger was thicker than that of the corresponding digit of the other hand. The grey-pink skin over it was thick and horny, particularly at its tip. In the acute angle it made with the finger the skin was dry and not infected. A small amount of painless movement was possible at the junction of bud and parent stem. A curious feature was the continuation for a short distance of the normal "whorl" pattern at its

base, but these characteristic markings rapidly gave way to a few short shallow linear creases, reminiscent of the "striae gravidarum." Although it was a cumbersome attachment the patient said he played darts and dominoes with ease.

A skiagram of the hand as a whole showed that there was no generalized or local bone disease, and that the tumour was in fact composed of soft tissue only. A tentative diagnosis of an implantation dermoid was made.

Benign tumours of the hand are uncommon. Mr. Norman Lake gives the following: lipoma and fibroma, cutaneous myxomatous cyst, implantation cyst, glomus tumour, enchondroma, exostosis and osteophyte, and osteoclastoma.

After a preliminary photograph the base of the finger was infiltrated with 2 ml. of 1% procaine hydrochloride on each side of the bone—"ring" block anaesthesia, as described so succinctly by members of the hand clinic at University College Hospital. The skin at the base of the swelling was incised elliptically; the swelling was transfixed by a ligature and retracted by the patient, using his other hand. It was seen that the tumour had a pearly white capsule. Gauze dissection was enough for its separation, and bleeding was slight. Separation of the proximal part in the substance of the middle segment gave no difficulty. Little dead space was left at the end of the enucleation, and after dusting the wound with sulphonamide-allantoin the skin edges were brought together with three interrupted nylon sutures without packing.

Healing was rapid and by first intention. The sutures were removed on the tenth day and movement at the distal interphalangeal joint became rapidly normal. Meanwhile, a section of the tumour revealed that it was a fibroma.

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