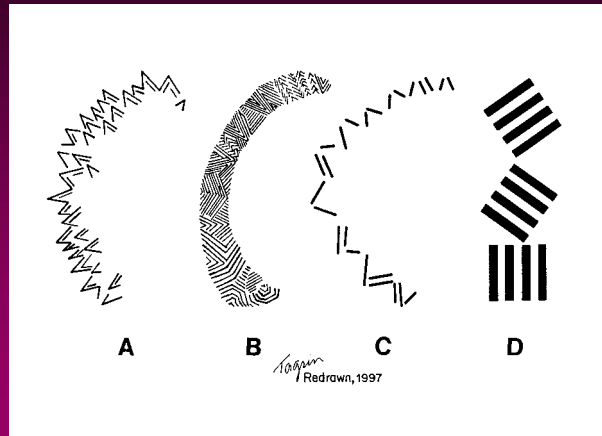


Migraine Aura: Scintillating Scotoma



Reprinted with permission from Fisher CM. Late-life (migrainous) scintillating zigzags without headache: one person's 27-year experience. *Headache*. 1999;39:391-397.

These four depictions of a scintillating scotoma show one of the more common manifestations of the visual aura, in which a central scotoma is bordered by a crescent of scintillating zigzags or other simple geometric patterns, which slowly advances to the edge of the visual field. The zigzag pattern is sometimes termed a fortification spectrum for its resemblance to the battlements of a castle or city wall.

Dr. Hubert Airy, a 19th century physician, described the elaborate scintillating scotoma he experienced with his migraine aura: “When it was at its height it seemed like a fortified town with bastions all around it, these bastions being coloured most gorgeously... All the interior of the fortification, so to speak, was boiling and rolling around in a most wonderful manner as if it was some thick liquid all alive.”

While simpler black-and-white patterns are somewhat more common than Dr. Airy's elaborate fortification spectra, the migraine aura continues to fascinate both physicians and patients.

Migraine Aura: Typical Features

- Visual disturbances confined to one field
 - *phosphenes*, eg, sparks, flashes, geometric forms
 - *scotoma*, area of diminished vision moving across visual field
 - *scintillating scotoma*, flickering spectrum at margin of scotoma
- Sensory: unilateral paresthesias and/or numbness
- Weakness, or more commonly a sense of limb heaviness: unilateral
- Speech: dysphasia

While there are many different presentations of the visual aura, including simple hallucinations, the visual disturbances most commonly reported by patients are phosphenes and scotomas. The scotoma may be a blank, blurred or luminescent area in the visual field, with or without a scintillating fortification pattern on the advancing edge. These visual phenomena characteristically march slowly across the visual field over a period of 5 minutes or longer. The aura may involve one such symptom or a succession of visual disturbances.

Unilateral sensory disturbances are also common, such as pins-and-needles sensations traveling, for example, from the face to the hand. Similar to the visual symptoms, these paresthesiae march slowly up or down a limb, or spread from one side of the face to the hand and up the shoulder. As one area becomes involved, previously involved areas will return to normal. This slow march helps to distinguish the migrainous aura from conditions in which aura-like symptoms build more rapidly or are maximal from onset, such as seizures and TIAs.

Numbness may occur following the paresthesia or in the absence of any other abnormal sensation.

Unilateral weakness or a vague sense of limb heaviness is sometimes reported. Disturbances of speech may also occur, though they are a much less common aura symptom.

Migraine with Aura: Diagnosis

At least 3 of the following 4 features must be present:

- One or more fully reversible aura symptoms indicating focal cerebral cortical and/or brainstem dysfunction
- At least one aura symptom develops gradually over > 4 min, or 2 or more symptoms occur in succession
- No single aura symptom lasts > 60 min
- Headache follows aura within 60 min (but may begin before or during aura)

And: History and physical do not suggest an underlying disorder, or this possibility has been ruled out by appropriate studies.

International Headache Society Diagnostic Criteria. *Cephalalgia* 1988; 8(suppl 7)

The International Headache Society (IHS) diagnostic criteria recognize the importance of sequence and duration of symptoms in distinguishing migraine with aura from more serious conditions. The migraine aura is a phenomenon in which one or more visual or sensory disturbances develop over a few minutes and disappear within one hour. A typical migraine headache usually follows within one hour, but may occur before or during the aura or may be entirely absent.

The IHS diagnostic criteria also describe less common subtypes of migraine with aura, in which the aura may be more prolonged and/or include some degree of hemiparesis. These cases obviously require more careful work-up to rule out underlying conditions such as transient ischemic attacks (TIAs) or small strokes. Also, as migraineurs with aura become older, they may experience auras without any headache at all. These cases also need careful investigation to rule out TIAs or other abnormalities, but a good history will go a long way in differentiating the less common subtypes of migraine with aura from emergent conditions.