GENERAL ICTAL FEATURES & OUTCOME

Ictal or post-ictal dysphasia usually reflects abnormality in language hemisphere. Epigastric sensations associated with medial temporal lobe epilepsy

Ictal involuntary speech and other automatic oral activity (whistling, spitting, smiling) usually reflects operation of non-language hemisphere

Manual automatisms generally ipsilateral to side of lesion in medial TLE, but contralateral in neocortical TLE. In TLE, head turning usually ipsilateral to lesion. There may be contralateral head turning later in the seizure.

Automatisms with preserved responsiveness may occur in frontal lobe seizures. In TLE they are more likely to occur with right temporal foci. Contralateral dystonia with ipsilateral automatisms seems to be specific to mesial TLE.

Seizure outcome after surgery – temporal > occipital > frontal

SYNCOPE

Circumstances of the attack are more important. The patient is usually flaccid, but myoclonus can sometimes occur. There is usually more rapid recovery after syncope, without significant post-ictal confusion. Pallor / sweat more often in cardiac.

PSYCHOGENIC SEIZURES

Note – No one feature differentiates psychogenic from organic.

More common in women.
Less common in older individuals (> 40yrs).
Triggered by emotional event, pain, sounds, lights, movements.
Presence of others can precipitate, alleviate or intensify.
May be unusually frequent (several a day).
Headache, pain common.
Psychiatric history.
Eyes closed and resistant to opening.
Primary seizure event lasts > 5 mins. Fluctuating course – Stop-Start.
Rapid breathing during attack. Gradual onset.
Rapid recovery. No post-ictal fatigue / sleep.
Oral automatisms rare;
Clear memory for event.
Before/After seizure – weepy, upset.
Consciousness may be preserved;
Post-ictal prosopagnosia.
Goal-directed activity during seizure.

Good Surgery Outcome
- Febrile seizures
- Hippocampal sclerosis
- Tumours. No sec gen seiz.
- Abnormal MR scan
- EEG-MR concordance
- Extensive resection
- no seizures in 1st post-op year

Good Surgery Outcome-2
- Absence of bilateral EEG abnormalities.
- Absence of ictal contralateral propagation

Good Surgery Outcome-3
- No evidence of cortical dysplasia.

Some epilepsy drugs, e.g. Topiramate, may have adverse cognitive or behavioural side-effects.

COGNITIVE & EMOTIONAL

Well-formed ictal visual hallucinations usually imply temporal lobe involvement, fragmentary ones – occipital involvement.

Transient epileptic amnesia associated with early morning attacks, long-term autobiographical memory loss, cardiac dysfunction, and patchy anterograde memory impairment

Déjà vu and similar experiential phenomena occasionally diagnostic of temporal lobe epilepsy, but also found in psychiatric conditions and in normal individuals. Ictal déjà vu specific to words or faces may lateralise

Poor memory post-surgery - Normal MRI, Bilateral path., Good pre-op memory perf., Low general cognitive perf., Late ep onset, Poor seizure control post-surgery, Discordant Wada, Extensive temporal lobe resection, Older age, **L** (lang) side surgery.
Mood, etc post-surgery - 3% incidence of *de novo* psychosis post t. lobectomy. Usually in first year. Pre-op bilat. EEG abnormality, path. other than HS in tissue, small contralateral amygdala. 10% incidence of *de novo* depression post surg.

HISTORY: Seizure Types First Onset Seizure Types

(*For Transient Epileptic Amnesia, see Transient Amnesia SmartPaper*)

Frequency **Time of day/month**

Predisposing–Precipitating–Perpetuating Factors **Alleviating Factors, Self-control measures**

SEIZURE - Checklist	*Spontaneous Account from Patient*
WARNING	
Epigastric	
Fear or other mood changes	
Auditory Experience from past	
Visual Experience from past	
Memory Experience from past	
Olfactory/Gustatory	
ICTAL -	
Oral Automatism	
Manual Automatism	
Limb Automatism	
Orientation	
Shorter-term Memory	*Spontaneous Account from Observer*
Longer-term Memory	
Absent Speech	
Involuntary Speech	
Abnormal Movements	
Anomia	
Behavioural Disturbance	
Hallucination	
Compulsive Behaviour	
Mood Disturbance	
Post Ictal Features	
Post Recovery Features	

PSYCHOGENIC ctd. ➔
Eye roll up – psychogenic
Psychogenic seldom in sleep.
Sympathetic system symptoms – usually non-epileptic.

Bilateral movements without loss of awareness usually psychogenic.
Psychogenic seizures more variable in presentation….short, stereotyped more likely to be epileptic. Vocalisation during tonic-clonic seizure more common in psychogenic.

Psychogenic – bizarre movements such as pelvic thrusts, thrashing, head side-to-side. Tongue biting (side of tongue in organic, rather than tip) and incontinence less common in psychogenic seizures, though bruises and carpet burns may still occur.

Affective and visceral auras more common in epilepsy that originates from medial temporal lobe structures than from lateral temporal lobe structures

Visual auras usually contralateral, but complex visual phenomena may be right hemisphere-based.

Olfactory hallucinations in medial TLE, often R-sided.

Orgasmic auras - more R focus

Gustatory halluc. associated with lesion of parietal operculum and insula.

Oral automatism associated with TLE.

Fear aura – amygdala involvement

As reference for Wada testing - Left-handers – 85-10-5% have left hemisphere, bilateral, and right hemisphere language representation

Verbal auditory hallucinations – left superior temporal gyrus.

Musical auditory hallucinations - right superior temporal gyrus.

Aura of urinary urgency associated with R-hem focus

Piloerection – medial temporal, ipsilateral to seizure focus.

FRONTAL SEIZURES

Subsequent memory for absence episode more closely associated with frontal rather than temporal lobe involvement.

Frontal seizures often have a motor component, and in some cases there may be complex motor automatisms - e.g. bicycling. Absence attacks, autonomic phenomena, and incontinence may accompany some frontal lobe seizures, depending on precise locus of lesion.

Head-turning contralateral to side of lesion, especially early in the phase of the seizure.

OTHER SEIZURES

Ictal smiling associated with right hemisphere focus

Cephalic (head sensations) and autonomic seizures tend to be more left-lateralised.

Post-ictal nose wiping ipsilateral to seizure locus.

Post-ictal headache in TLE ipsilateral to seizure locus.

Ictal vomiting & spitting associated with right TLE, though a few discordant cases reported.

These guidelines need to be considered in the context of clinical, imaging and laboratory findings.