



Extrapyramidal Symptoms (EPS): An Overview

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Objectives

1

Define
Extrapyramidal
Symptoms (EPS)

2

Discuss the types
and symptoms of
EPS

3

Identify the causes
and management of
EPS

What is EPS?

Drug-induced movement disorder commonly associated with antipsychotic medications

Cause:

- Disruption of the dopamine D2 receptor pathway
- Inhibition of the nigrostriatal dopaminergic pathways results in EPS
- Antipsychotics (Haloperidol, Risperidone, Olanzapine etc.) block the D2 receptors

Risk factors:

- High doses of antipsychotic, long-term use of antipsychotics
- Patient factors: Age, gender, genetic predisposition

Types:

- **Acute:** Dystonia, Akathisia, Parkinsonism
- **Chronic:** Tardive Dyskinesia

Causes of EPS

Medications involved:

- First-generation (typical) antipsychotics (e.g., haloperidol, chlorpromazine)
- Second-generation (atypical) antipsychotics (e.g., risperidone, olanzapine)

Mechanism:

- Dopamine receptor blockade in the basal ganglia

Dystonia

Involuntary sudden, sustained muscle contractions

Repetitive or twisting movements and abnormal postures

Can involve the neck, face, eyes, tongue, or limbs

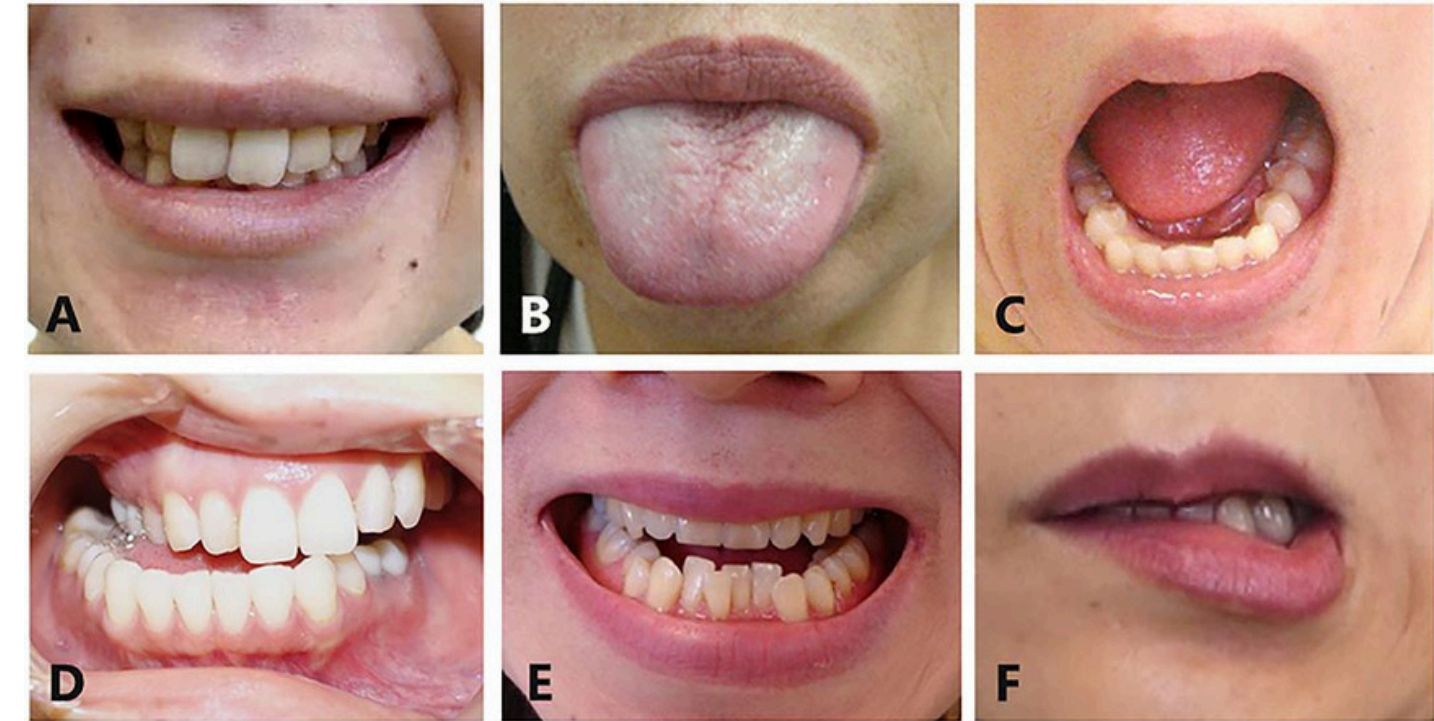
Common Presentations:

Torticollis: Twisting of the neck

Oculogyric Crisis:
Upward or lateral deviation of the eyes

Tongue Protrusion or Spasm: Can cause difficulty speaking or swallowing

Trismus (Lockjaw):
Contraction of jaw muscles



Treatment:

1. Lower Dose Antipsychotic
2. Benztropine or diphenhydramine (given IM or IV for acute cases)

Akathisia

- Movement disorder characterized by an intense feeling of inner restlessness and an irresistible urge to move
- "I can't sit still"
- Constant pacing, shifting weight, fidgeting, or tapping feet.

Treatment:

- 1. Lower Dose of antipsychotic**
- 2. Beta Blocker: Propranolol (Most effective)**
- 3. Benzodiazepines (Lorazepam or Clonazepam)**



Parkinsonism

- Movement disorder that resembles the symptoms of Parkinson's disease
- **Bradykinesia:** Slowness of movement.
- **Rigidity:** Stiffness in muscles, often described as a "lead-pipe" or "cogwheel" sensation.
- **Resting Tremor:** Often starts in the hands (pill-rolling tremor)
- **Postural Instability:**
Difficulty maintaining balance, stooped posture and shuffling gait.

Treatment:

1. Lower dose antipsychotic
2. Switch to an atypical antipsychotic with a lower risk of EPS (e.g., clozapine, quetiapine).
3. Anticholinergics: benztropine or trihexyphenidyl



Tardive Dyskinesia (TD)

A chronic, often irreversible movement disorder characterized by repetitive, involuntary movements:

Orofacial Dyskinesia:

- Grimacing, tongue protrusion, lip smacking, puckering, or chewing motions.

Extremity Movements:

- Jerky or writhing movements of the arms, legs, or trunk.

Trunk Movements:

- Rocking, twisting, or swaying.
- Movements are usually slow, repetitive, and can worsen with stress or emotional arousal.

Tardive Dyskinesia Symptoms



Tongue protrusion



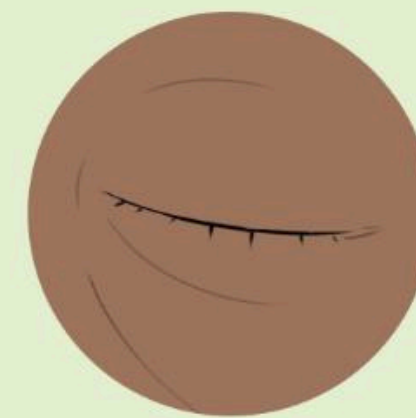
Lip smacking



Mouth puckering



Facial grimacing



Excessive eye blinking



Writhing movements

Treatment:

1. **Lowest effective dose of antipsychotics**
2. **Prefer second-generation (atypical) antipsychotics with lower TD risk**
3. **VMAT2 Inhibitors: Valbenazine or Deutetrabenazine**

Clinical Pearls

Early identification and intervention are crucial

Weigh risks vs. benefits when prescribed antipsychotics

Patient education about potential side effects

Summary Slide



EPS	Onset	Symptoms	Treatment
Dystonia	Hours to Days	Sudden, sustained contractions of muscles of the neck, face, eyes, tongue, or limbs.	Benztropine or diphenhydramine
Akathisia	Days to Weeks	Restlessness or constant movement, such as pacing, shifting weight, fidgeting, or tapping feet.	Propranolol (Preferred) Lorazepam or clonazepam
Parkinsonism	Days to Weeks	Slowness of movement Stiffness in muscles, "lead-pipe" or "cogwheel" sensation Resting Tremor, pill-rolling tremor Postural instability, shuffling gait	Benztropine or trihexyphenidyl
Tardive Dyskinesia	Months to Years	Grimacing, tongue protrusion, lip smacking, puckering, or chewing motions Jerky or writhing movements of the arms, legs, or trunk. Rocking, twisting, or swaying of the trunk	Valbenazine or Deutetrabenazine

References

- AMBOSS
- Rachael Zimlich, B. (2024b, May 3). *Are tardive dyskinesia and extrapyramidal symptoms the same?*. VerywellHealth.
<https://www.verywellhealth.com/tardive-dyskinesia-vs-eps-5200575>