

**PITUITARY APOPLEXY**



*“A Few Small Nips”, oil on metal, 1935 Frida Kahlo, Museo Dolores Olmedo, Mexico City.*

*By 1934 Frida Kahlo was back home from Gringolandia at last. By rights she should have been happy, however in this year she produced no paintings at all. Diego was unhappy being back in Mexico and behaved like a sulking child. The following year, 1935, she produced only two works, one of which heralded a dark side that would permeate her works up until the last years of her life, when they became far brighter*

*again. Frida had become aware of her husband Diego's affair with her own sister, Cristina. She was devastated and angry. She became a different person from this point, transforming from the obedient adoring wife to an independent woman who was now willing to step out of the shadow of her famous husband, as an Artist in her own right.*

*One of her works produced in 1935, "A Few Small Nips" reflects her savage anger towards her husband and men in general at that time. The work was so graphically shocking that it could not be displayed in public, and is possibly one of her paintings that Pierre Colle refused to exhibit in the "Mexique" exhibition in the Renou & Colle Gallery in Paris four years later. It represents the transcript of a newspaper report at the time, of a gruesome murder committed by a depraved man. He stabbed to death his wife in an act of jealousy, when he discovered she had had an affair.*

*Diego's affair with her sister had not been his only affair, there had been other women, but now his latest involved her own sister, she vented her anger in a graphically gruesome depiction of the murder that was being reported in the papers. She left Diego and their San Angel double house, to live in her own apartment in the center of Mexico City, and contacted a lawyer friend, one of her former "Cachucha" comrades at the National Preparatory School in order to get advice about a possible divorce.*

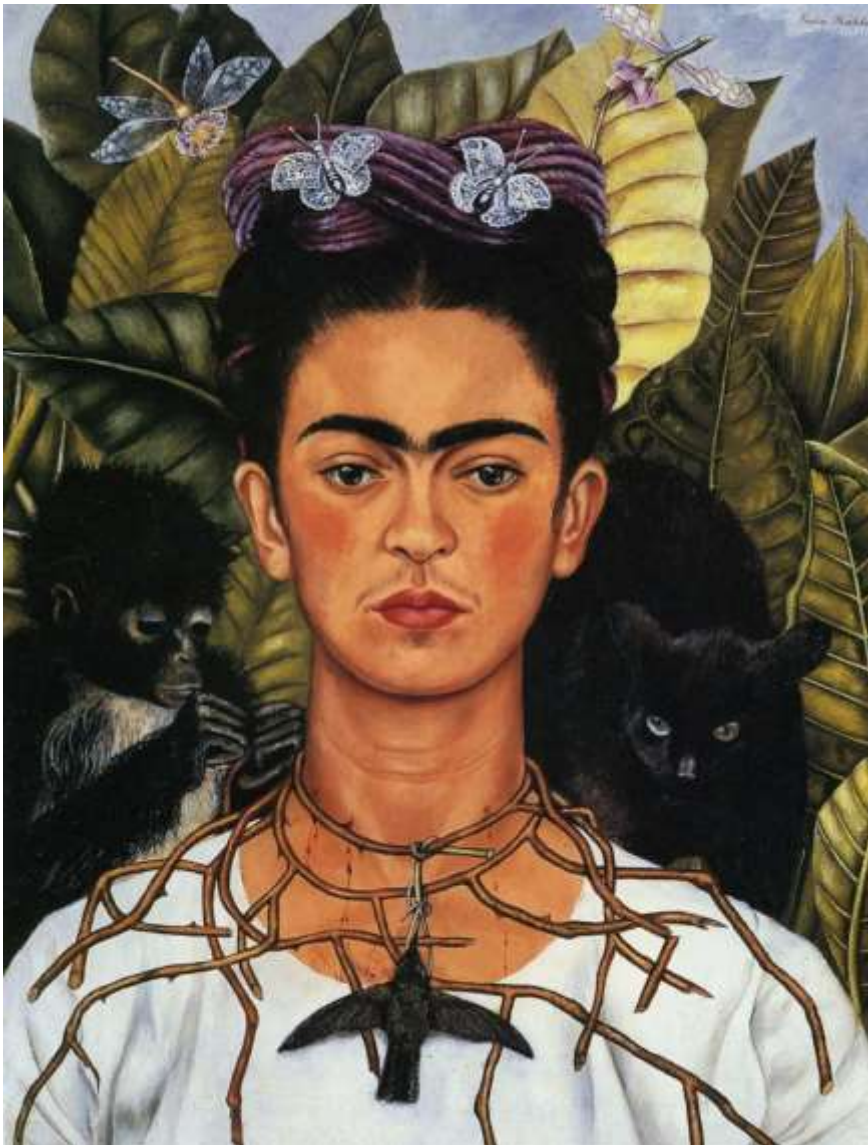
*"A Few Small Nips" depicts the shocking aftermath of the murder reported in the papers. The killer holds a bloody knife over his victim, who lies on the bed covered with wounds. Her hand lies outstretched over the edge of the bed with a blood stained palm facing towards the viewer, echoing Christian scenes of martyrdom. Blood drips onto a greenish - yellow floor which is everywhere marked by more blood stains, evidence of a frantic struggle. Frida once recorded in her diary her colour codes for depicting strong emotions. For her, green-yellow represented "madness and mystery", "All the phantoms wear this colour", she noted. The man is brutal and unfeeling, with hand in his pocket, he casually surveys his horrible work. Frida later explained to a friend, that the man appears unconcerned, because "in Mexico killing is quite satisfactory and natural". She had felt a need to depict this murder, as she was having feelings of having been "murdered herself by life". It depicted all the violence done to women and the callous disregard that society seemed to have towards domestic violence.*

*Blood spills out of the painting and into the real world of the viewer. By spattering blood all over the frame the viewer is made to feel that they are actually in the room and part of the bloody scene itself. It is a technique that Frida would repeat three years later in her shocking portrait of "The Suicide of Dorothy Hale". Frida's physical and psychological pain were inextricably one and the same. The motif of pierced flesh as occurs in the "The Little Deer" and the stabbing crown of thorns of many of her self-portraits evoke the Christian symbolism of the martyrdom of Saint Sebastian. The stab wounds reflect Frida's own physical and psychological pain.*

*Frida explained that her motivation lay in the story told in the newspapers of a drunken man, who in a fit of rage killed his wife. When the outraged judge asked the man to explain his actions, he simply replied, "But all I did was give her a few small nips". The comment threw Frida into an ungoverned rage.*

*Despite the graphic horror of the image, Frida nonetheless infuses into the work some small degree, of typical Mexican black humour that relishes horror and laughs at death. A pair of doves fly above carrying a banderole bearing the title of the work, as if in imitation of some Boticelli angels.*

*Patients who suffer a sudden stroke of their pituitary gland, are said to have suffered a pituitary “apoplexy”. Apoplexy is an old and archaic term without any real medical meaning. It once simply described any acute loss of consciousness from any cause. In the pre-imaging age the exact cause of an acute loss of consciousness was very difficult, if not impossible to accurately determine. The term really only retains a tenuous modern day existence in specific reference to stroke syndromes involving the pituitary gland. In the modern common use English lexicon the term apoplexy is not used in regard to a medical condition at all, rather, the emotion of anger or outrage; one is said to be “apoplectic”, a term that could be rightly applied to Frida’s reaction to a gruesome murder perpetrated in a shocking case of domestic violence in Mexico City in 1935.*



*“Self Portrait with  
Necklace of Thorns”,  
oil on canvas, 1940,  
Frida Kahlo.*

## PITUITARY APOPLEXY

### Introduction

**Pituitary apoplexy** is a rare stroke syndrome that results from an acute haemorrhage, or less commonly an infarction, within the pituitary gland.

Although rare, it is important for 3 reasons:

1. It is a potentially lethal condition
2. It can lead to hypopituitarism
3. In the ED setting it is an important differential diagnosis of acute onset of severe headache.
  - While SAH or other ICH will be the major concern with this presentation, a pituitary stroke may be missed if an MRI is not performed.

The diagnosis may be suspected clinically from the classic presentation of:

1. **Acute onset, severe headache**
2. **Vomiting**
3. **Visual disturbances**
4. **Altered conscious state.**

In patients who survive the initial event, a **pan - hypopituitarism** can follow. All pituitary hormonal deficiencies can therefore occur, however the sudden onset of ACTH loss, and therefore cortisol deficiency, is the most serious because it can cause **acute adrenal insufficiency with life threatening hypotension.**

Surgical decompression of the pituitary may be performed in cases of severe or progressive impairment of vision or other neurological symptoms.

The visual disturbances and hypopituitarism, may improve after surgical decompression., but both problems may also improve spontaneously, as blood is resorbed, over a course of weeks to months after a hemorrhage.

**See also separate documents on:**

- **Acute Adrenal Insufficiency (in Endocrine folder)**
- **Myxedema Coma - Severe Thyroid Failure (in Endocrine folder)**

## History

The term “apoplexy” is actually an old archaic term that once described any acute loss of consciousness from any cause.

In the pre-imaging age the exact cause of an acute loss of consciousness was very difficult, if not impossible to accurately determine.

The term really only retains a tenuous modern day existence in specific reference to stroke syndromes involving the pituitary gland.

In the modern common use English lexicon the term apoplexy is not used in regard to a medical condition, rather, the emotion of anger or outrage; one is said to be “apoplectic”.

## Epidemiology

The usual age range is around 30 to 60 years

The incidence of pituitary apoplexy in patients with pituitary adenomas is unknown, but has been estimated at around 10%.<sup>1</sup>

## Pathophysiology

### Causes:

**Pituitary apoplexy** is a stroke syndrome that results from an acute haemorrhage, or less commonly an infarction, within the pituitary gland.

Associations include:

1. Most commonly a **pre-existing pituitary adenoma** is present.
2. Pituitary apoplexy can occur after head trauma:
  - This probably results from shear forces applied to the pituitary stalk with contusion, hemorrhage, and infarction of an adenoma.
3. Sheehan’s syndrome:
  - Normally, the pituitary gland hypertrophies in pregnancy.

This hypertrophy, combined with locally released factors, mediates vascular spasm and renders the pituitary more susceptible to infarction from compromised blood flow.

The clinical presentation of **acute pituitary apoplexy** has only been reported in the literature in a *minority* of patients with Sheehan syndrome.

The more commonly reported scenario is a woman who develops amenorrhea years later, with a diagnosis of Sheehan syndrome being made retrospectively.

### Complications:

Death may occur with the initial intracranial bleed if this is extensive

In patients who survive the initial event, a **pan - hypopituitarism** can follow.

All pituitary hormonal deficiencies can therefore occur:

1. Loss of ACTH

This will be the most immediate problem.

- ACTH loss will lead to acute cortisol deficiency, from **acute adrenal insufficiency** with resulting **potentially life threatening hypotension**.

2. Loss of TSH

- Hypothyroidism

3. Prolactin deficiency

- In **Sheehan's syndrome**, inability to lactate after delivery due to prolactin deficiency occurs and amenorrhea due to gonadotrophin deficiency then classically develops.

4. Diabetes insipidus (rarely)

- The less frequent involvement of the neurohypophysis probably stems from a difference in the anatomy of the vascular supply. The neurohypophysis contains an anastomotic ring of blood vessels that the adenohypophysis lacks.

### Clinical features

Clinical features include:

1. **Headache:**

- Usually acute onset and severe.

2. **Vomiting**

3. **Visual disturbances:**

These may include:

- Involvements of the optic chiasm / optic tracts / optic nerve:
  - ♥ Visual acuity impairment
  - ♥ Visual field impairment
    - ♥♥ The classic visual field defect is a bi-temporal superior quadrantic defect - but other defects are also possible.
- Impairment of the cranial nerves traversing the adjacent cavernous sinus:

Diplopia / ptosis

- Third cranial nerve, (oculomotor) (most commonly involved).
- Fourth cranial nerve (trochlear)
- Sixth cranial nerve (abducent)
- Ophthalmic nerve
- Maxillary nerve

4. **Altered conscious state:**

- From raised ICP

*Uncommonly:*

5. Involvement of the nearby internal carotid artery:

- Horner syndrome may develop from damage to the sympathetic fibers around the artery.
- Stroke syndromes

*Differential Diagnoses:*

The most important will include those of acute onset of headache in general:

1. SAH
2. Other ICH
3. Acute colloid cyst occlusion of the foramen of Monroe.

## Investigations

### Blood tests:

These are not done to make the diagnosis is pituitary apoplexy. Rather they are done looking for secondary complications of the condition or possible pathologies that may have led to it.

1. FBE
2. CRP
3. U&Es/ glucose
4. Coagulation profile
5. Pituitary hormone levels.

### CT Scan / CT Angiogram:

CT scan / angiogram will be the initial imaging study in the ED for patients who present with **sudden-onset severe headache** as it is imperative to exclude SAH or other ICH in the first instance.

It may demonstrate an intra-sellar mass consistent with a pituitary adenoma and evidence of haemorrhage.

### MRI Scan

**MRI** is the most sensitive imaging study for evaluating the pituitary gland.

It can determine:

- Size
- The presence of an adenoma
- The presence of hemorrhage
- The presence of infarction
- The presence of secondary adjacent cavernous sinus complications.

## Management

### Prevention:

Management of pituitary adenomas:



Management of pituitary adenomas is controversial in that some advocate early trans-sphenoidal surgical decompression in all patients, whereas others adopt a conservative approach for selected patients (without symptoms)..

Bromocriptine is used to treat:

- Prolactinomas
- Acromegaly

Prevention of Sheehan's syndrome:

In particular the prompt recognition and treatment of post partum haemorrhage

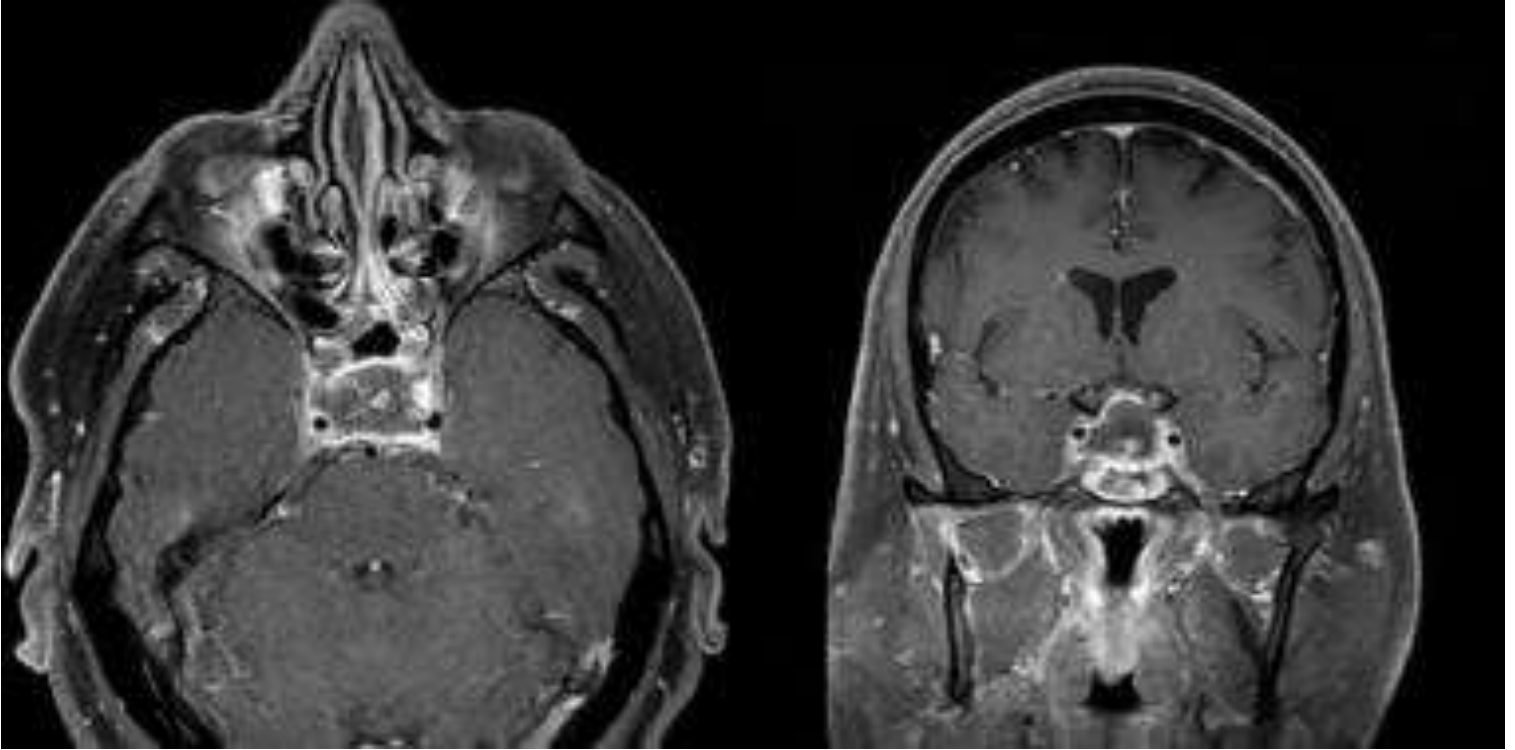
Treatment:

Surgical decompression of the pituitary may be performed in cases of severe or progressive impairment of vision or other neurological symptoms.

The visual disturbances and hypopituitarism, may improve after surgical decompression., but both problems may also improve spontaneously, as blood is resorbed, over a course of weeks to months after a hemorrhage.

Hormone replacement therapies - particularly corticosteroids - are given when deficiencies develop.

## Appendix 1



*Enhanced T1-weighted axial and coronal MRI showing a large pituitary tumor that has recently undergone ischemic apoplexy showing a necrotic (hypointense) center and surrounding ring of gadolinium enhancement (hyperintense), i.e., the “pituitary ring sign”. There is also a small area of hemorrhagic blush in the center of the necrosis. (eMedicine).*

References

1. Michael S Vaphiades; Pituitary Apoplexy in eMedicine Website, 23 March, 2015.

Dr. J. Hayes  
8 September 2019