

## Waterhouse-Friderichsen Syndrome

Waterhouse-Friderichsen syndrome is usually caused by *Neisseria meningitidis* infection, and is defined as 1° adrenal failure due to massive adrenal hemorrhage. This syndrome is also associated with septicemia, DIC and hypotension leading to endotoxic shock.



PLAY PICMONIC

### Acute 1° Adrenal Insufficiency

#### (1) Wand Acute-angle in Damaged Adrenal-gland

This syndrome is defined by rapidly developing adrenocortical insufficiency caused by massive hemorrhage. Patients typically show hypoglycemia, hyponatremia, and hyperkalemia, along with adrenal failure in the ACTH stimulation test.

### Adrenal Hemorrhage

#### Adrenal-gland with Hammer-hemorrhage

Waterhouse-Friderichsen syndrome involves massive adrenal hemorrhage, which often occurs bilaterally. This hemorrhagic adrenalitis is typically caused by tubercular infection of the adrenal glands by the bacterium *Neisseria meningitidis*.

### Hypotension

#### Hippo-BP

As a combined result of 1° adrenal failure and massive hemorrhage, patients display hypotension, which can rapidly progress to septic shock.

### *Neisseria meningitidis*

#### Knife Men-in-tights

*Neisseria meningitidis* is a common cause and association with Waterhouse-Friderichsen Syndrome (WFS), as it can acutely and selectively affect the adrenals. *Pseudomonas*, *Haemophilus*, and *Staphylococcus aureus* can also be associated with WFS.

### DIC

#### Dice

Disseminated Intravascular Coagulation (DIC) is another common association with Waterhouse-Friderichsen Syndrome (WFS). Patients develop purpura and petechiae and can display alterations of PT and PTT, further suggesting DIC with this syndrome.