

## UNIT-3

### CASE STUDY BASED PUZZLE

#### TOPIC-2 PROSTAGLANDINS

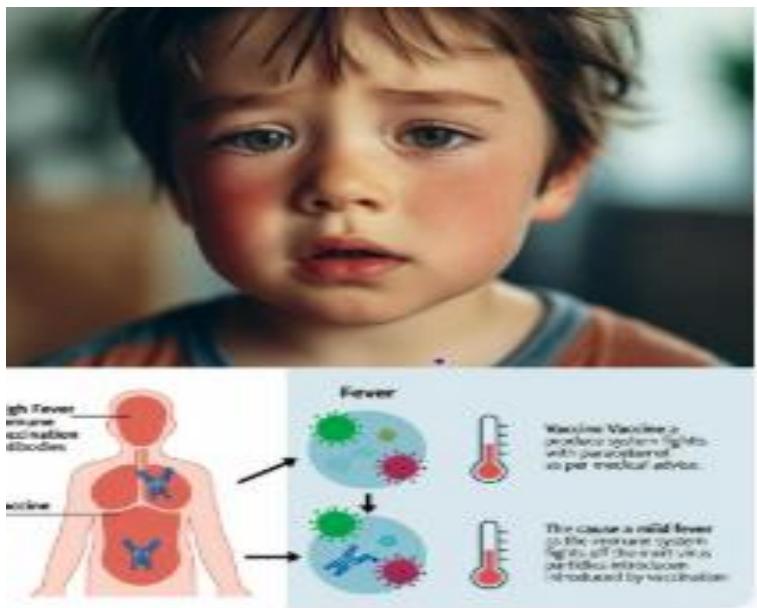
##### Case Study Puzzle 1: The Pain That Vanished



##### Puzzle Questions:

1. Which specific prostaglandin is most likely responsible for her menstrual pain?
2. Which enzyme is inhibited by ibuprofen to reduce prostaglandin synthesis?
3. Why does inhibition of this prostaglandin reduce uterine contractions?
4. Which prostaglandin subtype normally promotes uterine smooth muscle contraction?
5. Predict what would happen to platelet aggregation if this enzyme were inhibited long-term.

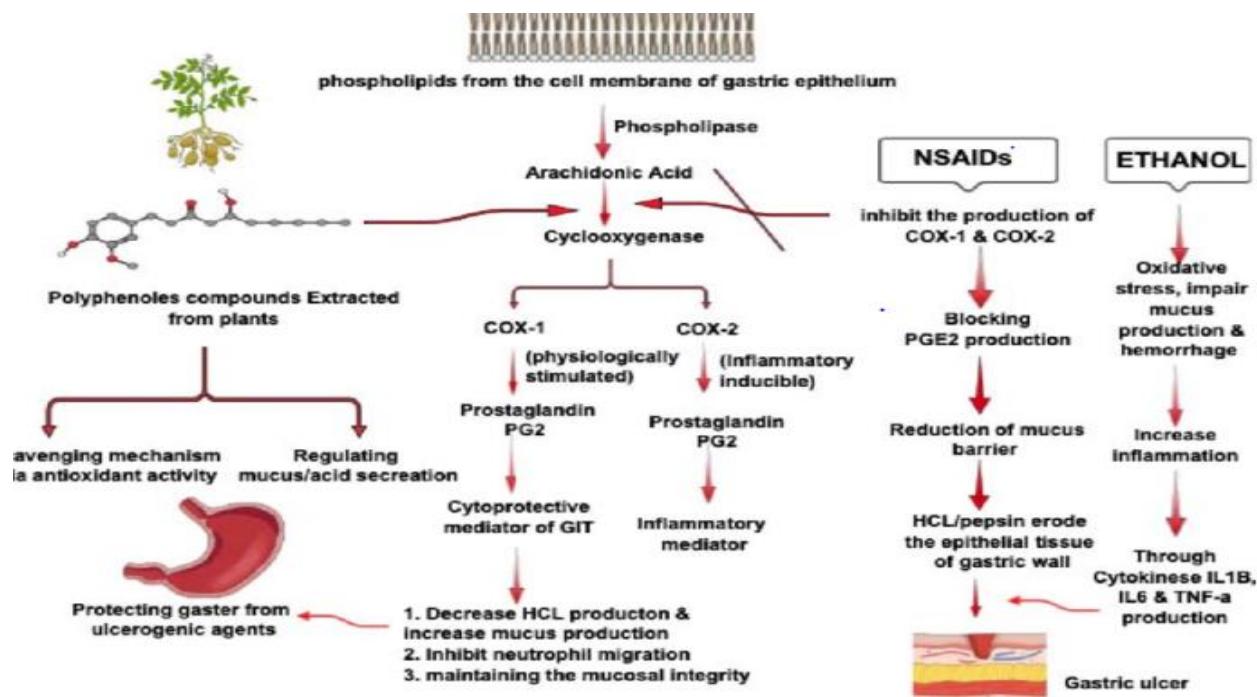
**Case Study Puzzle 2: Fever Without Infection**



**Puzzle Questions:**

1. Which prostaglandin mediates fever at the hypothalamic level?
2. How does paracetamol alter prostaglandin synthesis in the CNS?
3. Why does paracetamol have minimal anti-inflammatory action compared to NSAIDs?
4. Which cytokine likely triggered prostaglandin release in this case?
5. What would happen to body temperature if prostaglandin synthesis were genetically absent?

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1. Which prostaglandins normally protect the gastric mucosa?
2. How do these prostaglandins prevent ulcer formation?
3. Which COX isoform inhibition is mainly responsible for this adverse effect?
4. Why are selective COX-2 inhibitors less ulcerogenic?
5. Name one prostaglandin analog used to prevent NSAID-induced ulcers.

**Case Study Puzzle 4: A Newborn in Distress**



**Puzzle Questions:**

1. Which prostaglandin is used to keep the ductus arteriosus open?
2. Why is prostaglandin-mediated vasodilation crucial in this condition?
3. What would be the effect of indomethacin on the ductus arteriosus?
4. Which prostaglandin normally causes ductal closure after birth?
5. Why is oxygen tension important in regulating prostaglandin activity in neonates?

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**Case Study Puzzle 5: Clotting or Bleeding?**



**Puzzle Questions:**

1. Which prostaglandin derivative is inhibited in platelets by aspirin?
2. How does this inhibition reduce thrombus formation?
3. Which prostaglandin produced by endothelial cells counteracts platelet aggregation?
4. Why does aspirin selectively affect platelets more than endothelial cells?
5. Predict the cardiovascular risk if prostacyclin synthesis were impaired.

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