DISTAL (TYPE 1) RENAL TUBULAR ACIDOSIS

visualnephron

PATHOPHYSIOLOGY:

Dysfunction of the distal nephron resulting in impaired H^+ secretion into the urine along with impaired HCO_3^- generation as a result of drugs (eg. amphotericin, lithium) or systemic disease (eg. SLE, Sjögren's syndrome).

RESULT:

Metabolic acidosis from both reduced HCO_3^- generation and reduced urinary H^+ secretion causing inability to maximaly acidify urine (ie. urine pH remains >5.5). Decreased distal nephron K^+/H^+ exchanger activity results in hypokalemia from urinary potassium wasting.

	Type 1 RTA	Type 2 RTA	Type 4 RTA
HCO_3^-	↓	↓	↓
Urine pH	>5.5	<5.5	Usually <5.5
Serum K	↓	↓	↑

HCO_3^- = bicarbonate; H^+ = hydrogen; K^+ = potassium