Role of Gas producing organisms in Emphysematous Pyelonephritis

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Key Factors

Development of **EPN** requires the presence of following three components.

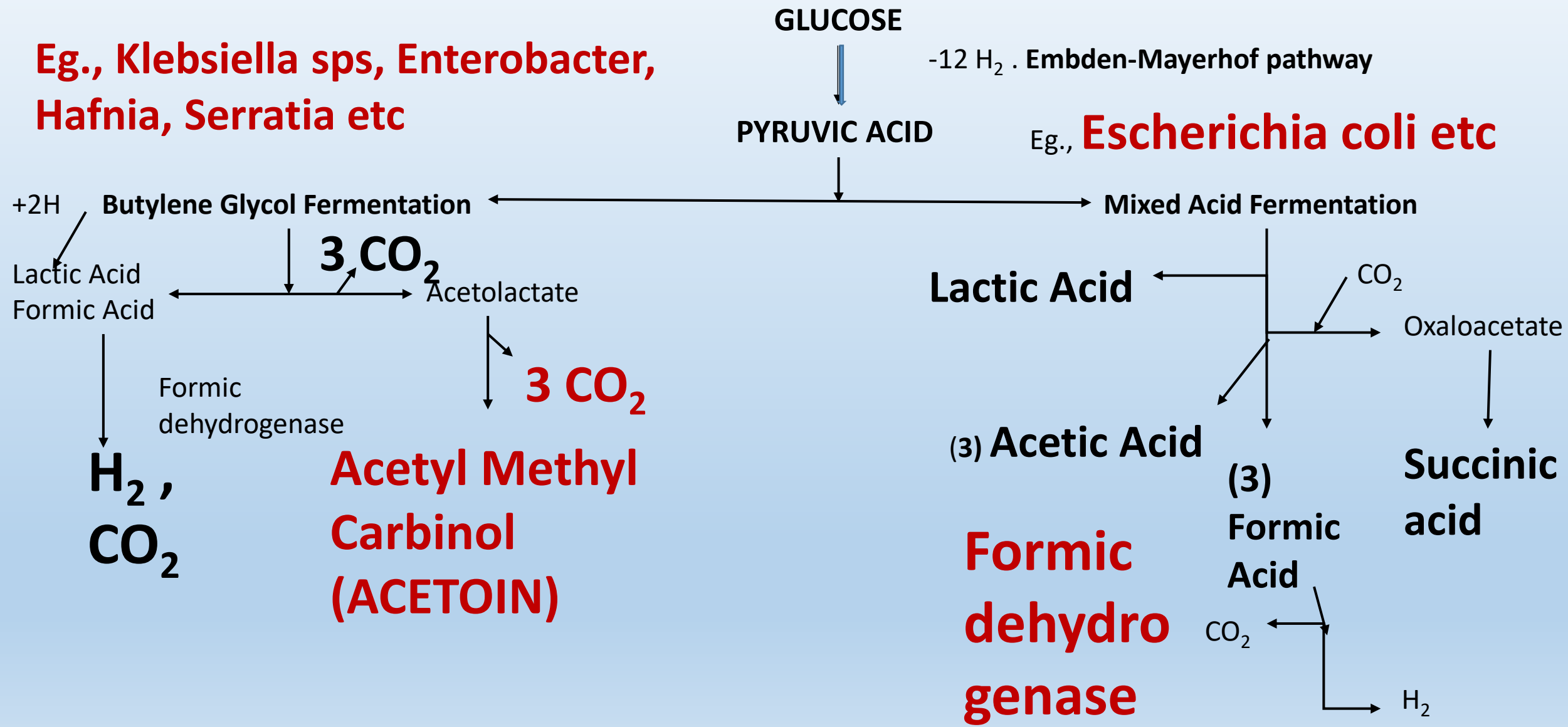
1. The presence of **gas forming bacteria**
2. High local tissue **glucose level**
3. Impaired **tissue perfusion**.

Etiology of Emphysematous pyelonephritis

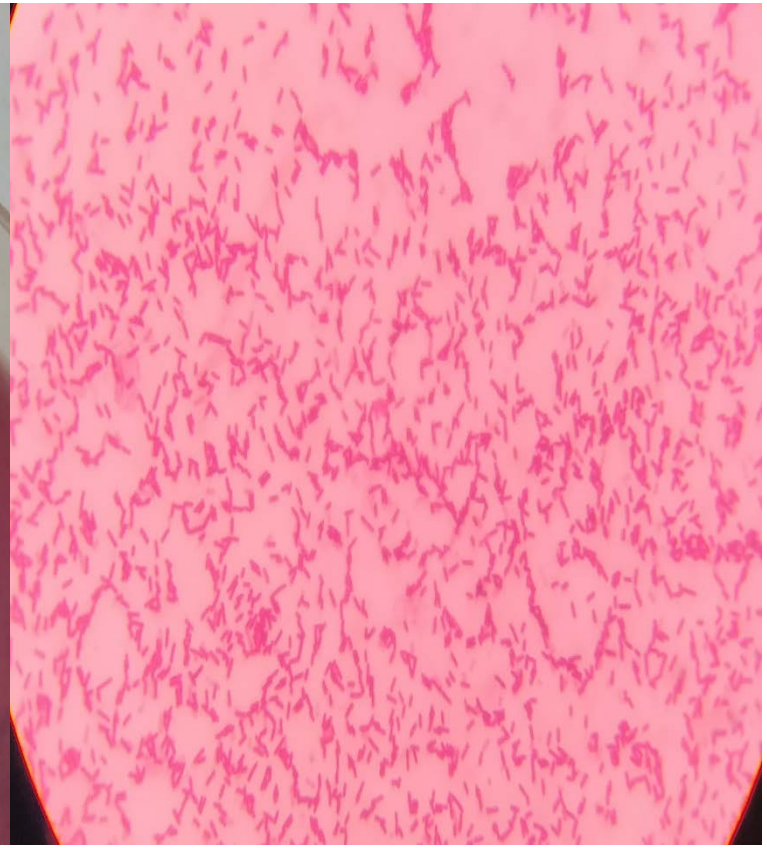
Gas producing bacteria

- **Escherichia coli** (Most common 66%)
- **Klebsiella** species (26%)
- **Enterobacter**
- **Citrobacter**
- **Proteus species**
- **Pseudomonas species**
- Streptococcus species., etc

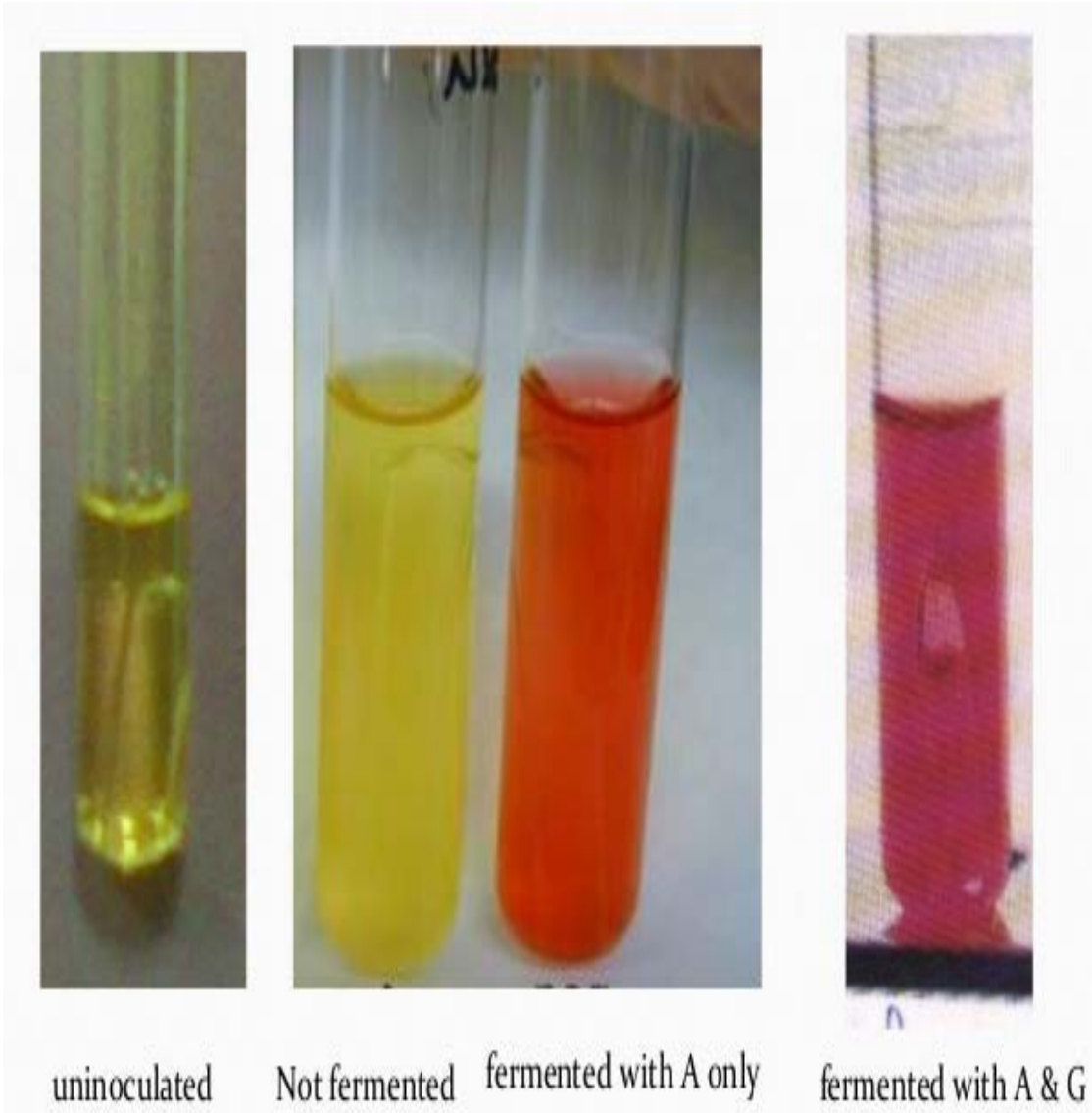
Fermentation pathways

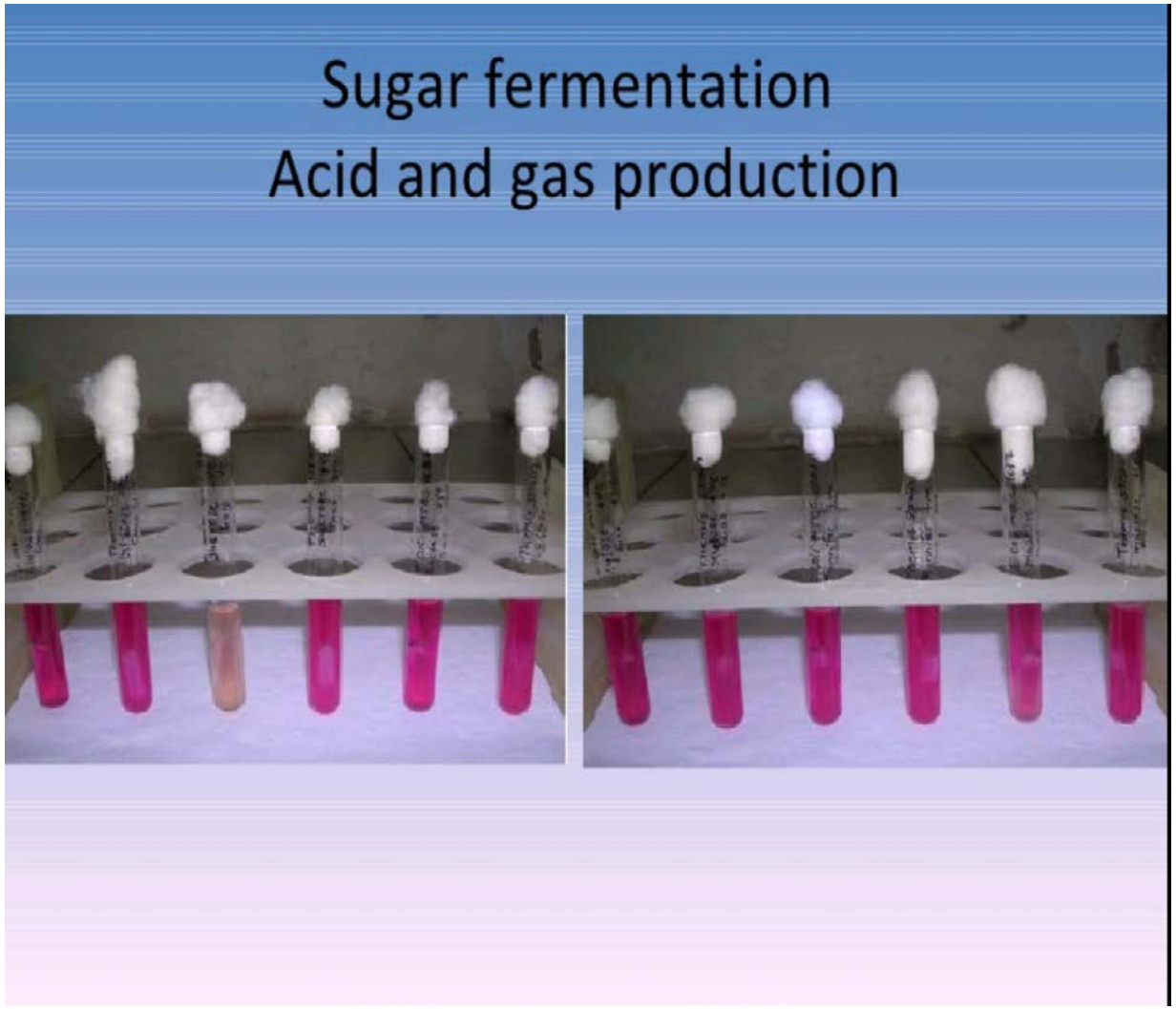


Isolation of organism



ICUT Reactions


uninoculated
Not fermented
fermented with A only
fermented with A & G


Sugar fermentation
Acid and gas production

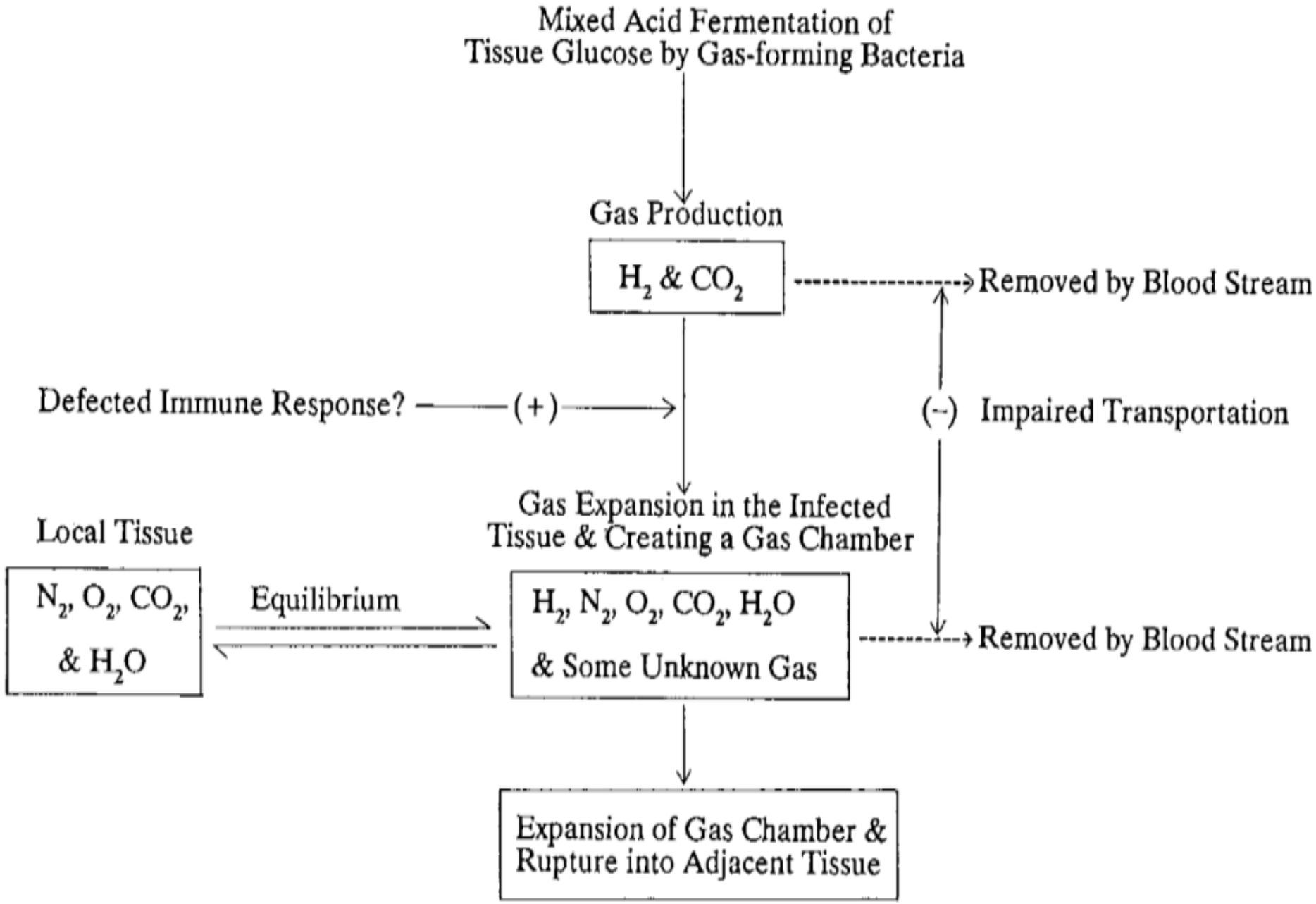


FIG. 4. Summary of proposed pathogenesis of emphysematous urinary tract infection

References

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- **Koneman E, Procop G, Schreckenberger P**, et al., editors. Koneman's Color Atlas and Textbook of Diagnostic Microbiology. 7th ed. Philadelphia: **Lippincott Williams and Wilkins; 2017.**
- **Jeng-Jong Huang , Kuan-Wen Chen and Mirng-Kunh Ruaan**.:Mixed Acid fermentation of glucose as a mechanism of Emphysematous Urinary tract infections. The **journal of Urology,july 1991**;146:148-151.

Thank you