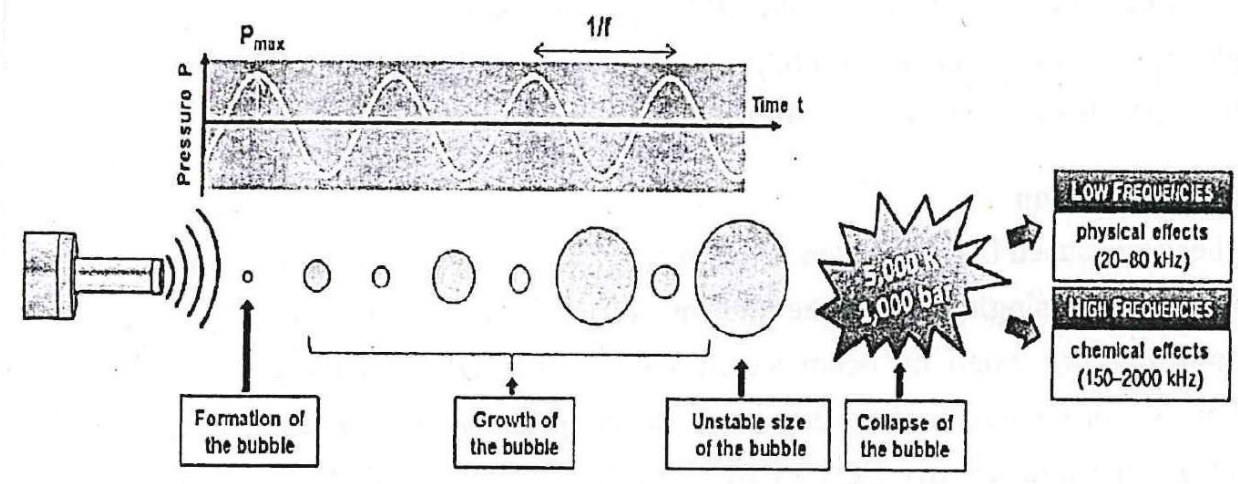
Cavitation

Cavitation refers to an oscillation in the volume of a gas bubble in response to pressure fluctuations produced by an incident ultrasound wave.

- Cavitation is most likely to occur in vivo when microbubble contrast agents are employed or if the lungs are exposed to ultrasound.
- But most tissues contain small volumes of gas that can combine to form cavitation nuclei when exposed to ultrasound.
- Low intensity ultrasound typically produces harmless stable cavitation, in which gas bubbles are not disrupted.
- However, high intensity ultrasound can produce inertial cavitation, in which the rarefactional phase of the pressure wave expands the bubble to greater than its maximum stable volume, resulting in a sudden collapse of the bubble. The sudden collapse produces local heating of the order of 1000 – 10000 degree Celsius.



Schematic representation of the acoustic cavitation phenomenon