Acoustic lens for shockwave lithotripsy

Systems and methods for providing therapeutic shock waves are provided. A modified acoustic lens can include a first lens portion for directing a first part of an acoustic shock wave pulse toward a target and a second lens portion for directing a second part of the acoustic shock wave pulse toward the target. The second lens portion can be offset relative to the first portion such that transmission of the second part of the acoustic shock wave pulse through the second lens portion is delayed by a predetermined amount relative to transmission of the first part through the first lens portion. In situ superposition of the first and second pulses near and at the target can lead to the formation of a pressure waveform with idealized pulse profile and broadened focal width, which can provide for improved comminution of a concretion located within a living body with reduced tissue injury.

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