

# The “two-tone” testis

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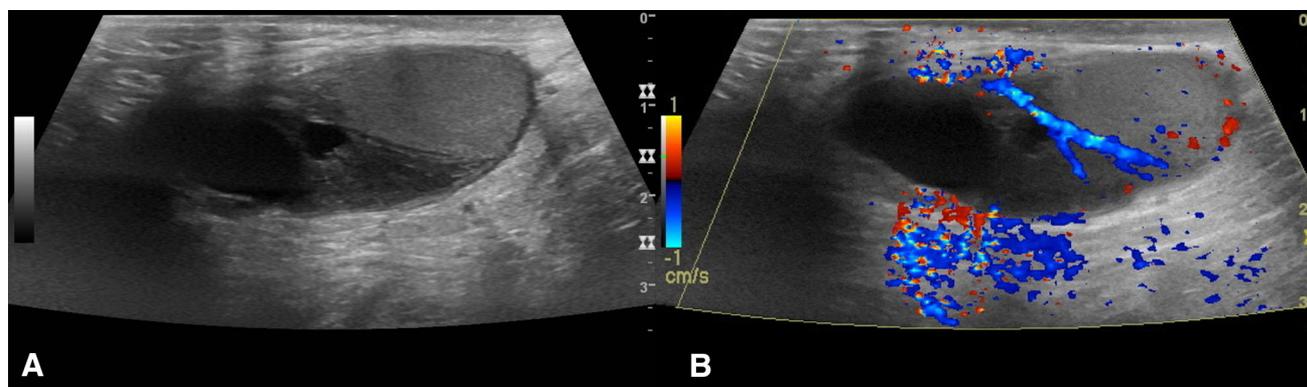
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The term “two-tone” has been applied to the distinctive appearance of an uncommon artifact encountered at testicular ultrasonography, which is reminiscent of a custom paint job on a classic car (Fig. 1). First described in 1995 [1], the two-tone testis is an imaging artifact that characteristically exhibits normal parenchymal echogenicity in the near-field portion of a testicular ultrasound image with hypoechoic parenchymal echogenicity deep to an oblique interface. On color Doppler ultrasound imaging, the oblique interface is shown to be due to a transtesticular artery (Fig. 2).

In one report, only 1.6% of a study population that included 1038 patients undergoing testicular ultrasound examination exhibited the two-tone artifact [2]. Importantly, in this same report the artifact was shown to have no relation to the presenting clinical symptoms or other ultrasound findings. The distinctive two-tone appearance of the testicle is proposed to be a byproduct of refractive

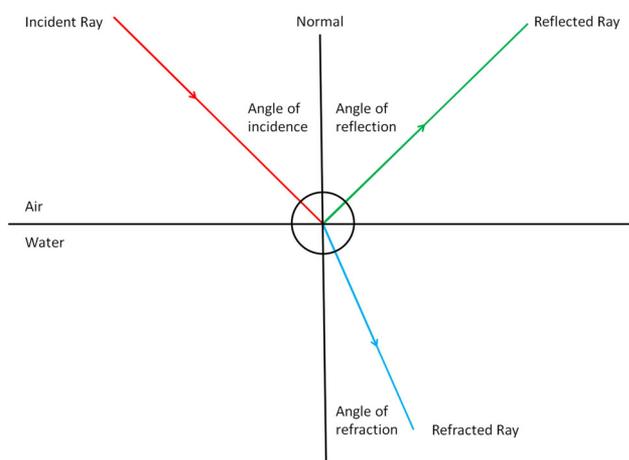


**Fig. 1.** A customized 1954 Chevrolet 3100 pickup truck with a two-tone paint job. Photo courtesy of Pixabay.com, accessed June 2018.



**Fig. 2.** The “two-tone” testis as seen on sagittal grayscale (A) and color Doppler (B) ultrasound imaging. Images demonstrate the differential echogenicity of the testicular substance in the near field and deep to a traversing

intratesticular artery. The superficial testicular echogenicity is normal, whereas the echogenicity deep to the artery is decreased due to refractive shadowing. An incidental epididymal cyst is also imaged.



**Fig. 3.** Angles of incidence, reflection, and refraction of light at an air-water interface. The situation is analogous to the ultrasound beam refracting and reflecting at the oblique interface of the transtesticular artery in the two-tone testis. Figure adapted from <https://keydifferences.com/difference-between-reflection-and-refraction.html>, accessed July 2018.

shadowing and defocusing of the sound beam rather than reflective shadowing [1–3]. The phenomenon is somewhat analogous to a beam of light reflecting and refracting at an air–water interface (Fig. 3). Furthermore, if the artifact was due to reflective shadowing, one would expect the wall of the transtesticular vessel to have

strong wall echogenicity, which is not the case with the two-tone testis [2]. Other common anatomic areas in ultrasonography where this refractive type artifact is recognized is the oblique interface of the gallbladder wall or edge of a cyst in a solid organ. Ultimately, it is important for both radiologists and sonographers to recognize that the two-tone artifact is not associated with any pathologic condition.

#### Compliance with ethical standards

**Funding** None.

**Conflict of interest** The authors declare that they have no conflict of interest.

**Research involving human and animal rights** This article does not contain any studies with human participants or animals performed by any of the authors.

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