Elastographic Imaging of the Cervix and Uterine Wall

Published date: March 14, 2017

Technology description

Elastography is a new ultrasound imaging technique that detects and images the local stiffness properties of tissues under compression. Elastrography promises to improve the diagnosis of several uterine and cervical disorders. For example, it could provide a more direct measure of cervical incompetence – a disorder believed to be the principal cause of an estimated 25 percent of premature deliveries – because the stiffness properties of the cervix relate more closely to cervical competence than does the current measure, cervical length. In addition, unlike conventional ultrasound, elastography can potentially distinguish uterine fibroids from adenomyosis foci, due to the differences in stiffness between these tissue types. A group of UW-Madison researchers has now developed an elastographic method and device for producing diagnostic images of the cervix, uterus and pelvic floor. Their invention includes a number of ways to achieve the controlled tissue compression needed for imaging, such as using the ultrasound probe itself to compress the uterus or cervix, or inflating a balloon (similar to the balloons used in angioplasty) inside these organs to compress them.
The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an elastographic method and device for producing diagnostic images of the cervix, uterus and pelvic floor.

Application area

Elastrography imaging of the cervix, uterus and pelvic floor
Diagnosis of incompetent cervix, endometrial cancer and other disorders

Advantages

Provides a simple, low-cost alternative to magnetic resonance imaging (MRI) for the diagnosis of uterine, cervical and pelvic disorders
Could provide a more reliable measure of cervical incompetence and the risk of premature delivery than the current measure, cervical length
Unlike conventional ultrasound, holds potential for distinguishing between fibroids and adenomyosis in the uterus

Could be used to distinguish endometrial cancer from benign uterine disorders such as hyperplasia

Institution

Wisconsin Alumni Research Foundation

Inventors

Mark Kliewer
Tomy Varghese
James Zagzebski