Pressure transmission ratios are designed to study objectively the relative transmission of pressure to the bladder and the urethra during stress. Characteristically the stress is continuous coughing during the measurement of the cough urethral closure pressure profile. The magnitude of the pressure transmitted to these two organs is determined in Fig. 23.1 by measuring the amount of pressure transmitted to the bladder (b) in a particular cough compared to that transmitted to a particular part of the urethra (u) during withdrawal of the urethral pressure transducer catheter. The pressure transmitted is measured as the bladder pressure increment and the urethral pressure increment above the urethral pressure profile curve caused by withdrawal of the urethral pressure transducer through the urethra during repetitive coughing. The ratio of these pressures is then calculated and multiplied by 100% \((u/b \times 100\%)\) and termed the pressure transmission ratio. Inadequate transmission of intra-abdominal pressure to the urethra compared to that transmitted to the bladder is felt to be the primary pathologic process in genuine stress incontinence. Single or multiple sites for the measurement of pressure transmission ratios may be chosen. Positive pressure transmission is the hallmark of continence, whereas negative pressure transmission (characteristically expressed as a percentage less than 100%) is indicative of failure of the extrinsic continence mechanism and associated with genuine stress incontinence unless the intrinsic continence mechanism represented by the resting closure pressure is able to compensate for this negative pressure gradient. In the example in Fig. 23.2 both Valsalva and cough pressure profiles are illustrated. The Valsalva pressure profile on the left indicates the lack of pressure equalization and maintenance of positive pressure during a maximal straining effort. The cough pressure profile demonstrates positive pressure transmission as indicated by the small positive pressure spikes over the surface of the basic urethral closure pressure profile. The area under the curve of the pressure profile is referred to as “margin to leakage” since this is the pressure which must be overcome to cause pressure equalization and

![Diagram](image-url)
Fig. 23.2. Pressure transmission ratios measured during an actual cough urethral closure pressure profile.