Glandular tissue component (GTC) on breast ultrasound has recently gained attention as a clinically meaningful descriptor of fibroglandular tissue composition, particularly in women with dense breasts. Unlike mammographic density, which cannot distinguish glandular tissue from fibrous stroma, ultrasound can depict these components based on echogenic differences, allowing qualitative assessment of the relative amount of glandular tissue within fibroglandular tissue. This concept arose from the need to better identify tissue truly associated with breast cancer risk and to capture imaging features that may reflect the degree of lobular involution.

With the release of BI-RADS v2025, GTC has been introduced into the ultrasound lexicon as a new qualifier for tissue composition, reflecting increasing recognition of its potential clinical value. Its inclusion followed ongoing discussion regarding terminology, reproducibility, applicability across different populations and ultrasound platforms, and whether evidence was sufficient for formal standardization. GTC is generally defined as the proportion of glandular tissue relative to fibrous stroma within fibroglandular tissue on ultrasound and is commonly classified into four categories: minimal, mild, moderate, and marked; it may also be dichotomized into low and high GTC.

This lecture reviews the background that led to the introduction of GTC, its definition and classification. It also summarizes recent studies on GTC, including work on breast cancer risk prediction, lesion classification, recurrence and survival outcomes, and interobserver agreement. In prior longitudinal data, high GTC was independently associated with increased future breast cancer risk in women with dense breasts, while interobserver agreement for GTC assessment has been reported as moderate, underscoring both its promise and the need for further standardization. In addition, the lecture will discuss ongoing prospective validation studies, including international multicenter work designed to confirm the relationship between sonographic GTC and subsequent breast cancer risk across broader populations. Institutional data from our hospital will also be presented to illustrate current research directions and practical experience with GTC-based analysis. Finally, future opportunities will be addressed.

This lecture aims to provide a structured and up-to-date understanding of GTC, facilitating its appropriate application in clinical breast ultrasound practice and encouraging further research in this emerging field.