

ACTIVITY: Mammogram Analysis

You are a radiologist (doctor who evaluates images including mammograms). You receive two mammogram images and must determine if the breast images are of normal breast tissue or if the images require further investigation. Look carefully at FIGURE 3-4 to complete your analysis. A review of this activity can be found following the Section III Summary.

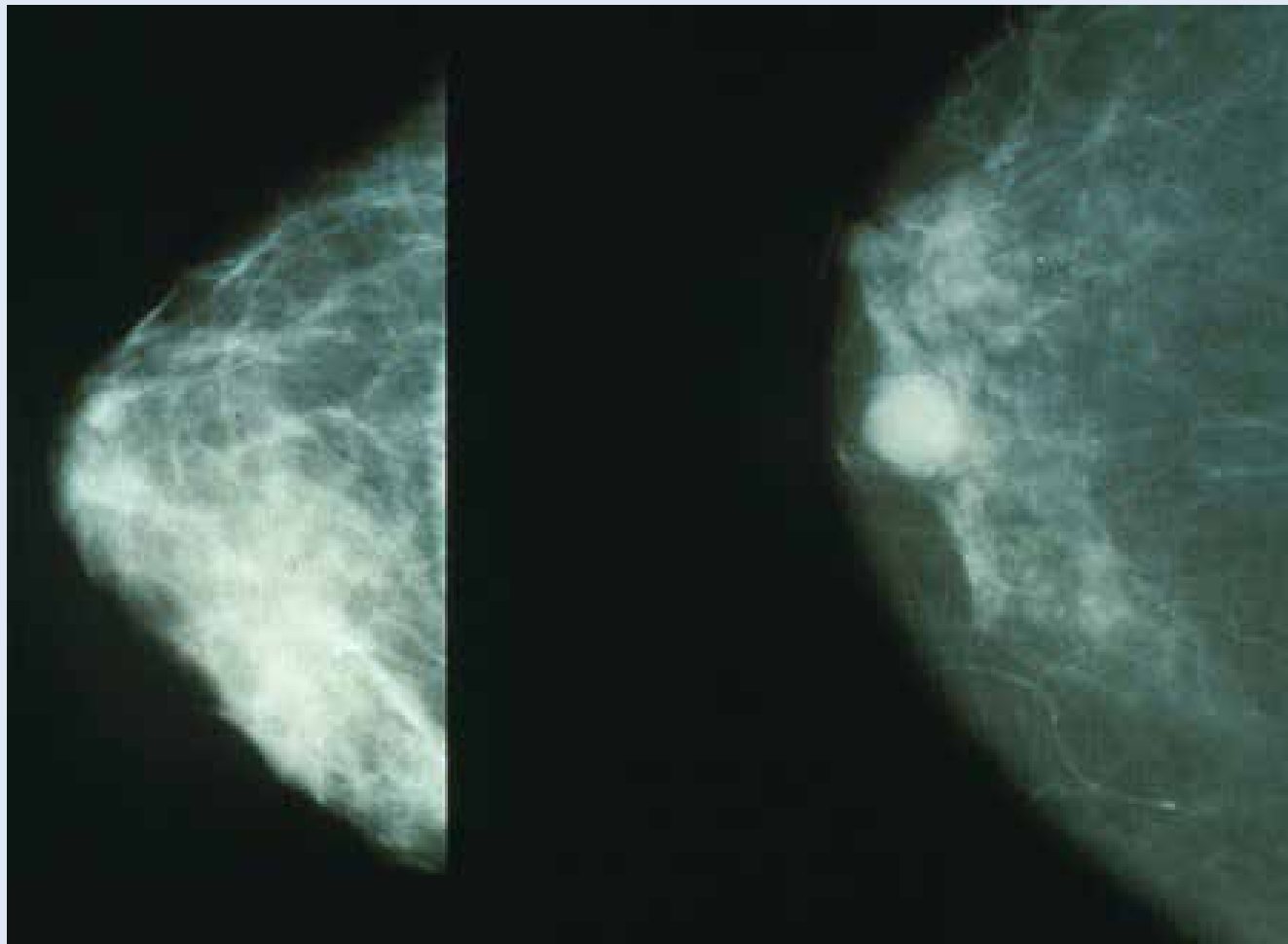


FIGURE 3-4: Mammogram²⁰¹: Two sample mammogram images.

- **BRCA-1 and BRCA-2** – *BRCA-1* and *BRCA-2* are tumor suppressor genes that have been associated with breast cancer when mutated (changed).²⁰² The name BRCA (breast cancer) comes from their association with cancers of the breast, but they have also been identified to be mutated in cancers of the ovaries (egg-producing organs in females) and fallopian tubes (tubes connecting the ovaries to the uterus in females). BRCA mutations have additionally been associated with female peritoneal cancers, cancers in the abdominal lining, and also in male breast cancer.

Women who carry a BRCA mutation on one allele of the gene, meaning that their other copy of the gene is normal, will develop cancer if this heterozygous state is lost. Without a mutation, the risk of developing breast cancer is only about 12 percent, but with one BRCA mutation, the risk of cancer jumps to over 65 percent.²⁰³ With ovarian cancer, the risk rises from a little over 1 percent in those without a BRCA mutation to a 17 to 44 percent risk for those with a BRCA mutation. This supports the increased need for close screening in those individuals with