Gadolinium (Gd), a rare earth, is frequently used in the medical and industrial domains. In the medical field Gd is essentially employed as a contrast agent in the Magnetic Resonance Imaging (MRI). In the industrial field it is used in manufacture televisions, car batteries, computer components, CD Roms, reason for which previous works have attempted to study its behavior in many organs such as liver, kidney etc. However, the precise intracellular localization of this element in the lactating mammary gland cells remains poorly understood. The aim of this work was to study the intracellular localization of Gd in the rat lactating mammary gland and the chemical form of the intracellular deposits. The ultrastructural localization of Gd was studied using the conventional transmission electron microscopy (CTEM). The chemical determination of the intracellular deposit was performed using electron probe microanalysis (EPMA). Ultrastructural observations showed the presence of many dense granules in the lysosomes of mammary glandular epithelial cells of the Gd treated rats. The EPMA showed that the intralysosomal deposits were composed of Gd and phosphorus. These results showed that after its intraperitoneal administration, Gd was concentrated in the lysosomes of the glandular epithelial cells as an insoluble Gd phosphate salt. The present observations remind those previously published showing that after its parenteral administration Gd was observed in the liver, the kidney, the spleen and the bone marrow. More sophisticated methods have to been carried out to study the impact of the presence of Gd or other mineral elements on the organism.