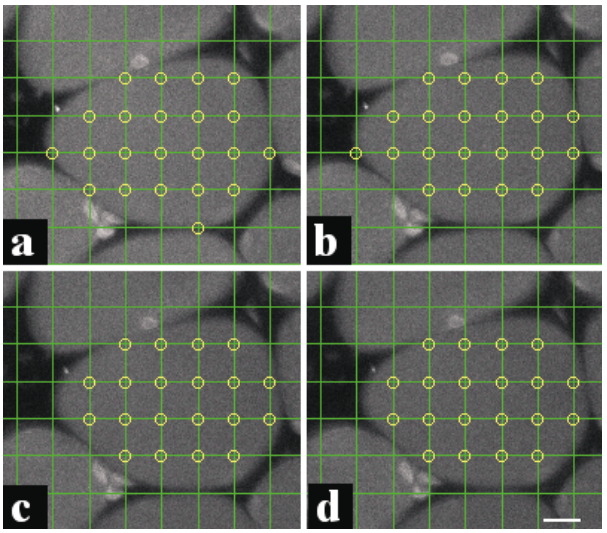

FIGURE 15-22 The method using a cubic spatial grid of points applied to muscle-fiber volume estimation using the SANDAU program. The test points (given by the knot points of the test grid) falling into the fiber within the 40 μm thick muscle slice are counted. The grid constant is 10 μm here; the estimated volume of the muscle fiber slice is thus equal to $(22 + 21 + 20 + 20) \times 1000\ \mu m^3 = 83\,000\ \mu m^3$.

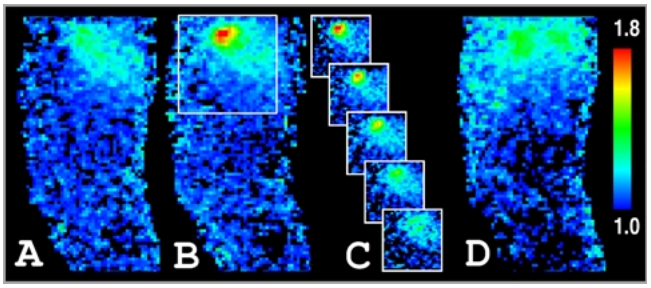

FIGURE 16-1 Three selected pseudocolored 3D images of $[Ca^{2+}]$ in a smooth muscle cell during onset and decay of a calcium spark, reflecting a brief release of $[Ca^{2+}]$ from internal stores of $[Ca^{2+}]$ (Kirber et al., 2001). These are taken from a time series of 32 three-dimensional images. The pseudocoloring gives the ratio of each image to the 3D image at time 0. (*a*) is at time 265 ms; (*b*) is at time 285.5 ms; (*d*) is at time 503.5 ms. In (*a*), (*b*), and (*d*), each image is a projection of five focus planes taken while continuously moving the objective with 1 μm of motion during each 2D image. Each 2D image is a 5 ms exposure; each 3D image took 26.5 ms, including focus turnaround time at the top or bottom of each image. Each 3D image is restored, incorporating the motion blur of the continuous motion focus change into the point spread function used in the image restoration. (*c*) is a view of the five separate planes of the image restoration of the spark in (*b*). While the spark appears in the volume projection to be in the center of the cell, the view of the individual planes of the restored spark image in (*b*) shows that it is actually near the bottom of the cell.