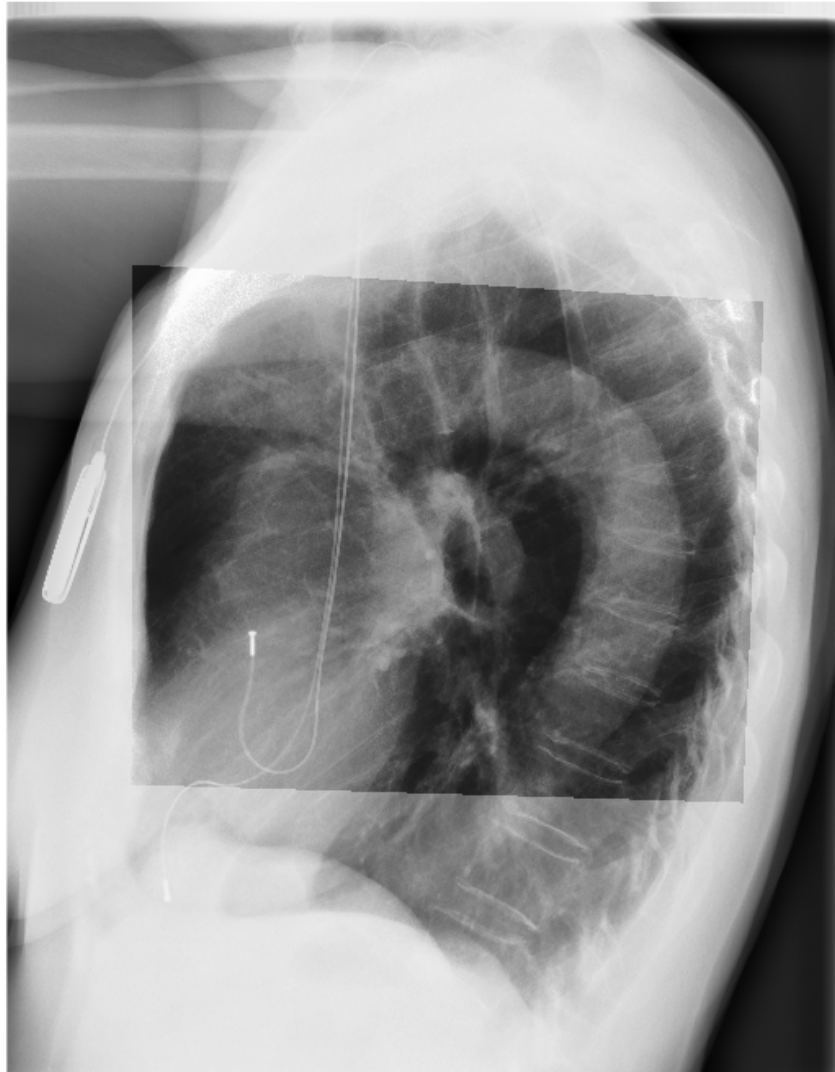**Quetion 5**

A MATLAB script that implements region-based histogram equalization on a monochrome image. The script allows the users to specify an image, interactively select a region of interest to which the histogram equalization operation will be applied, and disppays the results of the operation.

```matlab
close all; clear; clc;
[file, canceled] = imgetfile();
if canceled
    return
end
info = imfinfo(file);
if not(strcmp(info.ColorType, 'grayscale' ))
    fprintf('input image must be grayscale!\n');
    return
end

img = imread(file);
mask = roipoly(img);

img2 = histeq(img, 256);
img2 = immultiply(not(mask), img) + immultiply(mask, img2);
imshow(img2);

Warning: Image is too big to fit on screen; displaying at 33%
Warning: Image is too big to fit on screen; displaying at 33%
```

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