Radiation physics –practical
The magnification

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Introduction

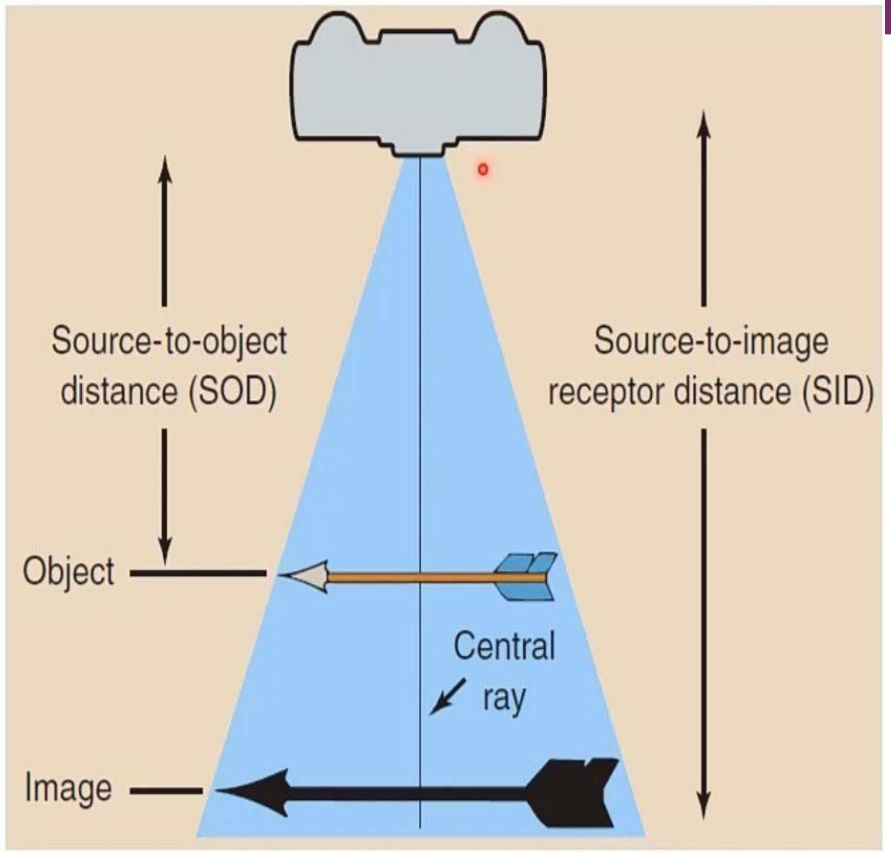
- **Geometric rules applicable, due to divergence of light rays in a beam,**
- **Object nearer to source - shadow enlarges.**
- **Object away from source - shadow size decreases.**
- **Enables fine anatomical details than the original and accurate diagnosis.**
- **In 1982 an Italian doctor named Alessandro Vallebona proposed this technique.**

The magnification

- **Magnified image can be produced by increasing the object to film distance in which the x rays diverging from the point source will produce a directly magnified image.**

- **The definition of the magnification is the relationship between the object plane and the image plane which increase in size of the object.**
- **The magnification is the (Image Size)/(Object Size).**

Magnification factor



Magnification Factor

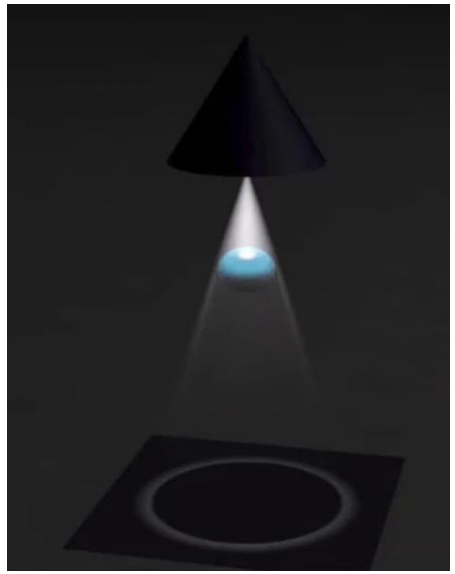
$$MF = \frac{\text{Image size}}{\text{Object size}} = \frac{\text{SID}}{\text{SOD}}$$

Factors Affecting Magnification

1. SID (Source to Image Distance)
   Increasing SID = decrease in magnification
   Decreasing SID = increase in magnification.
2. OID (Object to Image Distance)
   Increasing OID = increase in magnification
   Decreasing OID = decrease in magnification

Minimizing Magnification

- Large SID: Use the less divergent beam.



- Small OID: Get patient as close to the film as possible.

