

Radiation physics –practical

The magnification

Asst.Lec.Dumoa Haider Shakir

Introduction

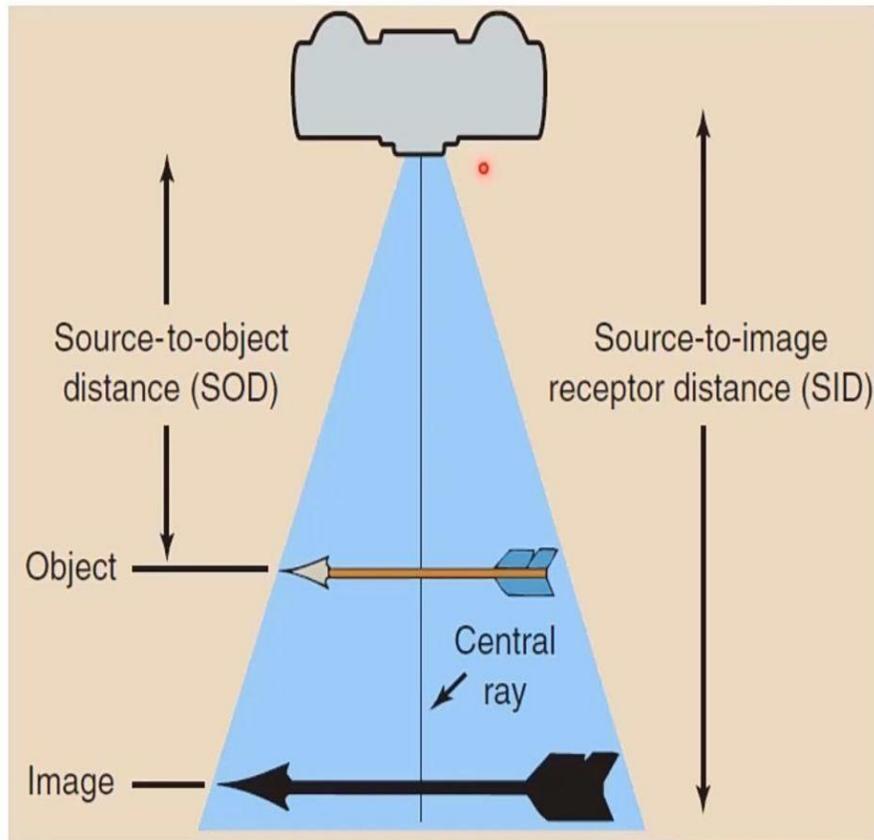
- ▶ **Geometric rules applicable, due to divergence of light rays in a beam,**
- ▶ **Object nearer to source - shadow enlarges.**
- ▶ **Object away from source - shadow size decreases.**

- ▶ **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 $(\text{Image Size})/(\text{Object Size})$.

Magnification factor



Magnification Factor

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

Factors Affecting Magnification

1. SID (**S**ource to **I**mage **D**istance)

Increasing SID = decrease in magnification

Decreasing SID = increase in magnification.

2. OID (**O**bject to **I**mage **D**istance)

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.**

