So, the condition for nth bright fringe becomes $\Delta x_{optical} = \pm n\lambda$ (n = 0, 1, 2, ...)

$$\left(\frac{d\,.\,y_n}{D}\right) - (\mu - 1)\,t = \pm\, n\lambda$$

$$\Rightarrow \quad y_n = \pm\, n\frac{\lambda D}{d} + \frac{D(\mu - 1)t}{d}$$

$\Rightarrow$ nth fringe is shifted by $\Delta y_0 = \dfrac{D(\mu - 1)t}{d}$

As $\beta = \dfrac{D\lambda}{d}$, also $\Delta y_0 = \dfrac{\beta}{\lambda}(\mu - 1)\,t$

Note: Thus by the introduction of a thin glass plate in front of any slit, the fringe width does not change. However, the whole pattern shifts by a distance of $\dfrac{(\mu - 1)tD}{d}$

The shift of the pattern is towards that side where the thin transparent plate is introduced. More the refractive index of the material of plate more is the shift.