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*RESEARCH ARTICLE*

# An evaluation of the effects of unilateral cryptorchidism on the testis, epididymis and seminal vesicle of the contralateral side in the laboratory mouse

■POONAM SINGH AND M. KUMARI

**ABSTRACT :** The present study has been carried out to evaluate the effects of unilateral cryptorchidism on the contralateral, scrotal testis as well as on the epididymis and seminal vesicle, and on the fertility of the laboratory mouse. Adult male laboratory mice of Parkes strain were made cryptrochid unilaterally and sacrificed eight weeks after the operation to study the changes in the testis, epididymis and seminal vesicle of the contralateral, scrotal side and compared the same organs with that of ipsilateral, cryptorchid side and of controls. The results revealed severe degenerative changes in the seminiferous tubules in the testis and epididymis while seminal vesicle appeared unaffected histologically of the ipsilateral, cryptorchid side. Same organs of the contralateral, scrotal side however, remained unaffected histologically throughout the period of the operation. The level of sialic acid in the ipsilateral epididymis decreased significantly while the level of seminal vesicular fructose of the same side remained unaltered. On the other hand, the level of epididymal sialic acid and fructose in the seminal vesicle of contralateral side in UC animals did not exhibit any significant alterations comparable to that of controls. Sperm count in the cauda epididymidis of the ipsilateral cryptorchid side exhibited a significant decrease while that of contralateral side remained comparable to that of controls. However, fertility of the cryptorchid mice remained unaffected throughout the period of the operation as compared with the controls. The results of the present study therefore suggest that UC performed at the adult age neither exerts detrimental effects on the testis, epididymis and seminal vesicle of the scrotal side nor alters the androgen status and fertility in the laboratory mouse.

***Key words*** **:** Contralateral side, Epididymis, Fertility, Ipsilateral side, Seminal vesicle, Testis, Unilateral cryptorchidism (UC)

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**Author** for Correspondence -:
**POONAM SINGH**
Department of Zoology, Mahila Maha Vidyalaya, Banaras Hindu University, VARANASI (U.P.) INDIA
Email : poonom@gmail.com

See end of the paper for **Coopted authors**

## INTRODUCTION

Cryptorchidism is derived from the Greek word "Crypto" (meaning hidden) and orchid (meaning testes). It is the condition in which there is absence of one or both the testes from the scrotum. Cryptorchidism is a well known clinical anamoly associated with male infertility (Alpert and Klein, 1983; David *et al.,* 1992; Seppo *et al.,* 1996). Bilateral cryptorchidism is reported to result in complete infertility (Ratief, 1977 and Kogan, 1983). However, the reports on the effects of unilateral cryptorchidism (UC) on fertility are conflicting. Many authors have suggested that UC in human as well as in animals results in inhibition of fertility (Ratief, 1977; Shirai *et al.,* 1966; Cendron *et al.,* 1980), while others have reported no significant inhibition of fertility following UC (Mc Cullogh *et al.,* 1984; Agrawal and Mitra, 1996).

Various studies have reported inhibition of spermatogenesis in contralateral, scrotal testis along with ipsilateral, cryptorchid testis in UC animal models ( Shirai *et al.,* 1966; Salman *et al.,* 1988; Quin *et al.,* 1990; Stewart and Brown, 1990).However, others have reported hypertrophy of the contralateral, scrotal testis in UC animals (Clegg, 1965; Mancini *et al.,* 1965; Kirby *et al.,* 1985). In majority of the findings, changes in the contralateral, scrotal testis have been studied in the animals which were made unilaterally cryptorchid at their neonatal age. However, studies regarding the effects of UC on the testis and accessory sex organs of the contralateral side performed during adult age are not extensively reported. The present study therefore, deals with the effects of unilateral left artificial cryptorchidism on the testis, epididymis and seminal vesicle of the right, scrotal contralateral side.