Malignant risk in undescended testis

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Undescended testis has higher risk of malignant testicular tumour formation
Early orchidopexy decreases but not completely eliminates the risk of development of malignancy
Intra-abdominal testis is more prone to undergo malignant transformation compared to inguinal testis.
Risk is higher with bilateral undescended testis
The normal contra-lateral descended testis associated with an undescended testis has a higher malignant risk, compared to that in bilateral normally descended testes.
Relative risk of malignant testicular tumour formation in undescended testis

3.7 to 7.4 x the risk compared to normally bilateral descended testes
2,918 men followed up for 19 years after orchidopexy (control: 30199)
- Relative risk 7.4

Pinczowski D et al. The Journal of Urology. 1991 (Sweden)
507 consecutive patients following orchidopexy, 7 had malignancy during follow-up of between 24-35 years.

Relative risk 4.7

13% (100/778) of testicular malignancies occurred in undescended testis.

Stone JM. Br J Cancer 1991 Jul (Australia)
Review articles:

- Martin DC. The Journal of Urology. 1979 April
Does Early orchidopexy decreases risk of testicular malignancy?
- 6983 - orchidopexy
- 56 developed testicular cancer

- RR of malignancy according to age at orchidopexy
  - <13 years: 2.23
  - >13 years: 5.40

Pettersson A et al. The New England Journal of medicine. 2007 May
Meta-analysis:

- Malignant risk nearly 6 times high when orchidopexy performed after 10 years of age or had no orchidopexy, compared to those who had it before 10 years of age.

Walsh TJ. Journal of Urology 2007 Oct (USA)
High initial position of testis has higher risk of malignancy
Intra-abdominal testis has 5 times higher risk of carcinoma formation than inguinal testis.

Mathers MJ, et al. Dtsch Arztebl Int. 2009 August (Germany)
14% (23/164) adults with testicular malignancy had uncorrected intra-abdominal testis

Raina V et al. British Journal of Cancer 1995 (India)
Intratubular germ-cell neoplasia was found in 4% of 182 patients with intra-abdominal testes

*Study by Cortes et al. Journal of Pediatric Surgery (2010) 45*

Carcinoma in situ develops in up to 25% of testes retained in an intra-abdominal position into adult life

*Madden NP. Essentials of Paediatric Urology*
Bilateral undescend has higher malignant risk
Relative risk of testicular malignancy:

- Bilateral maldescent: 9.3
- Unilateral maldescent: 2.4

Study of 514 cases with germ cell cancer:

- Bilateral undescent: Odds ratio of 4.9
- Unilateral undescent: Odds ratio of 2.9

*Journal of Pediatric Surgery (2010) 45,
(Moller H. Thames Cancer Registry, Kings College 2001)*
Review of 43 reports on 220 testicular tumours:

- 8.2% (18/220) had B/L orchidopexy.
- 3/18, had B/L tumours

Martin DC. The Journal of Urology, April 1979 (USA)
Risk for the normally descended contralateral testis in undescended testis
Relative risk of development of malignancy in a normally descended testis when the contra-lateral testis has been undescended is 3 times the risk compared to normally bilateral descended testes.

Stone JM. Br Journal of Cancer. 1991 Jul (Australia)
Histology

- Seminomas: 40%
- Non seminomatous germ cell tumours: 60%

(84 patients)

Martin DC. The Journal of Urology. 1979 April
Thank you