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# GERMLINE TRANSLOCATION t(5;20)(p15;q11) AND FAMILIAL TRANSITIONAL CELL CARCINOMA

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Although putative bladder cancer families have been previously described, little is known about the genetic basis of this phenomenon. Whether hereditary bladder cancer exists as an entity separate from more clearly understood cancer family syndromes, such as the Lynch syndrome type II, remains controversial. We identified a potential bladder cancer kindred in which the proband was incidentally found to have the germline translocation 46 XY, t(5;20)(p15;q11) in addition to metachronous transitional cell carcinoma of the upper and lower urinary tract.

## CASE REPORT

The proband was treated for grade II superficial transitional cell carcinoma of the bladder at age 29 years (fig. 1). Subsequently he underwent nephroureterectomy for renal pelvic transitional cell carcinoma and is now disease-free. His mother had transitional cell carcinoma of the bladder and died of metastatic disease at age 65 years. Metastatic melanoma developed in the brother of the proband when he was 27 years old and he died after a brief disease course. The father died of prostate cancer at age 68 years. During an evaluation for infertility prompted by multiple spontaneous abortions experienced by the wife of the proband, the proband was found to have a balanced germline translocation (fig. 2). Interestingly, his mother had had a history of multiple spontaneous abortions but her karyotype is not known.

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## DISCUSSION

Conclusive evidence for the existence of a hereditary form of bladder cancer has not been reported. Evidence that transitional cell carcinoma of the ureter occurs within the constellation of the Lynch syndrome type II provides the most convincing proof that hereditary transitional cell carcinoma may exist.[1] Although current research suggests that a gene or gene complex on chromosome 9 may be the earliest genetic change associated with the development of bladder transitional cell carcinoma,[2] no data link a locus on chromosome 9 to a hereditary form of transitional cell carcinoma. The kindred that we identified is interesting because of the incidental finding of a balanced germline translocation between the short arm of chromosome 5 and the long arm of chromosome 20 in the proband. Although little is currently known about the role of chromosomal arm 5p in human cancer, 20q 11 to 13 is the location of the c-src oncogene, which is over expressed in transitional cell carcinoma.[3] Historical

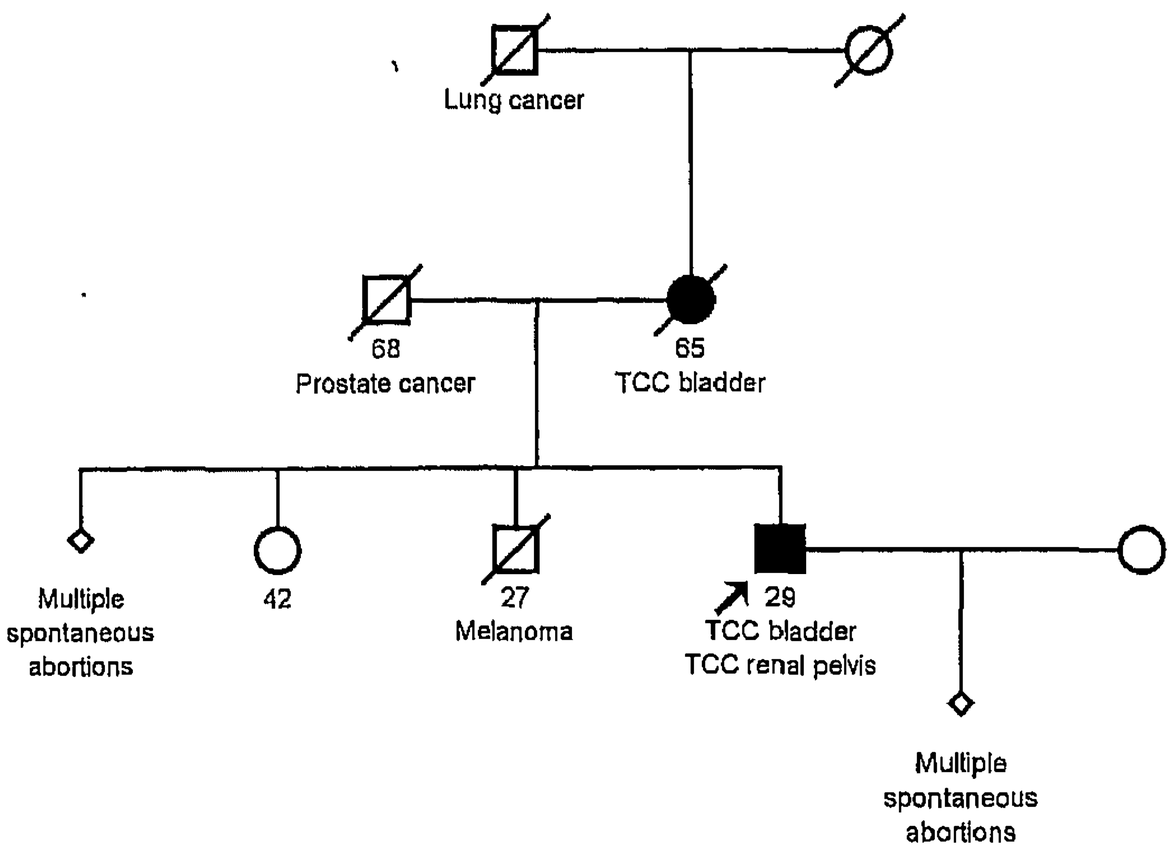


FIG. 1. Multiple family members from kindred of proband (arrow). Brother (⍁) died at age 27 years of melanoma and mother (●) died at age 65 years of transitional cell carcinoma (*TCC*) of bladder.


FIG. 2. Karotype of proband shows germline translocation at chromosomes 5 (arrow) and 20 (arrow). A total of 20 cells obtained from peripheral lymphocyte culture was examined and all had karyotypic abnormality, as described.

data from this family also suggest that the mother of the proband may have carried the same balanced translocation in light of her history of multiple miscarriages in addition to bladder cancer. The fact that cancer was diagnosed in the proband and his brother in early adulthood suggests that a familial component to their cancer should be considered. Whether genes on chromosome 5p or 20q can be implicated in the origin of a familial form of bladder cancer awaits the study of larger kindreds.

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