Translocations are infrequent causes of 18q-. In general, everyone with a translocation has a “unique” translocation involving different chromosomes and different breakpoints. In this case report, we discuss an exception to this rule. We have identified two individuals with a translocation involving similar breakpoints on chromosomes 4 and 18. These individuals had a deletion of 18q as well as a duplication of 4q. This finding has several implications. First, it suggests that there may be something about these two regions of the genome that makes them more likely to be involved in a chromosome rearrangement. So far, we have been unable to determine what exactly that might be. Second, this case report tells us that a routine karyotype is not sufficient to diagnose this particular translocation. More advanced technologies are needed. Lastly, this paper describes the different features of individuals with this translocation. This will help professionals in the identification of people with this translocation as well as in the counseling of families in which this translocation has been diagnosed.