ABSTRACT

Recent technological advances allow for the combination of robotic transoral surgery and carbon dioxide (CO2) laser technology, allowing for the use of lasers through flexible laser delivery fibers. The combination of these robotic applications can lead to increased visualization of the target and decreased morbidity of traditional surgical approaches. This paper describes the benefits and limitations of using the robotic surgical laser in combination with transoral robotic surgery (TORS). Gentle grasping of the laser fibers allows for good visualization of the tissue. However, mechanical failure of the CO2 laser fibers can occur with this technique. Two flexible CO2 laser fibers utilized eventually suffered mechanical failure, and the replacement fiber suffered the same type of bending mechanical failure. The CO2 laser technology is feasible using current robotic technology. Future research and development is needed to improve the laser fiber technology so that the laser surgeon understands the potential for mechanical failure and increased cost.