A simple design improvement of Waterlase iPlus©

Results in improved usability

Peter Hünnebeck, Dr Sophia Hünnebeck, Germany & Dr Roland Ventura, Ireland

Introduction

The Waterlase iPlus (Biolase) is a convenient and multi-purpose dental laser system including a handpiece which is connected to the laser by a fibre delivery system. The delivery system is raised by a telescopic fibre support arm attached to the laser body, which gives the dentist a defined range of motion. Used on a daily basis in dental treatment procedures, the presence of a laser system can reduce the workspace that is available to the dental staff due to its close proximity to the dentist. This is why the regular water and air multifunctional injection tools have to be moved out of the dentist's reach. At present, the Waterlase iPlus can provide the simultaneous use of laser, air, or water. Yet, neither air nor water can be used independently. In case only water or air is required during

Fig. 1: This multifunctional injection system providing air and water spray was added under recognition of the German law for medical products. The parts of the system containing water can be cleaned and disinfected.

Fig. 1



treatment, the laser system has to be moved first, before the air or water multifunction handpieces can be brought to the dentist. Naturally, this change of equipment requires time and attention from the staff, and can disrupt an otherwise efficient flow of the treatment procedure.

Modification of the Waterlase iPlus

In an attempt to modify the Waterlase iPlus in order to provide an additional source of water and air, we searched for suitable components that met some important criteria: they had to be readily available from German medical suppliers, they needed to be capable of providing both water and air, they needed to be easily attachable to the Waterlase iPlus using existing attachments. In addition, they had to be powered by the same unit without requiring an additional, external power source. Based on that approach, we have designed and acquired a custom-made unit from a German dental company (Gigadent Deutsche Dental GmbH, Kriftel) which can be attached to the Waterlase iPlus, providing both water and air from an additional handset that stands alongside the regular handpiece and fibre delivery system. This polyamide bar features an air connection which is powered by the Waterlase iPlus, and its own water bottle reservoir system. The tool rests on a telescopic fibre support arm which is very similar to the one that came with the Waterlase iPlus. The bar is connected to the wrap plates which firmly hold it in place. Both the support arm and the delivery tubing, which is attached to a multifunction water and air tool, stand at the end of the bar on the upper side. At the same end of the bar, a water reservoir is screwed into its underside. Compressed air is supplied via a T-connector which is attached to the air inlet connector and which enters the centre underside of the bar, providing pressure for the water and air functions.

Management in practice

The above-described combination of instruments allows for a significant increase in the workspace and range of motion of the treating dentist. The laser can easily be used for small soft-tissue surgery or for working on teeth as a versatile stand-alone solution. The suction is provided by the assistant from his or her side of the chair—as usual. Placed in a five-o'clock position, the dental instruments can be accessed by dentist and assistants alike without ever interfering with the patient's position or chair. The overall amount of nearby equipment is being reduced, which results in fewer fear incidents—especially involving patients suffering from claustrophobia. In addition, patients suffering from dementia and patients who are physically or mentally disabled can be treated more successfully. Moreover, patients in wheelchairs can be accessed and treated more easily as well. When treating these patients, the dentist can seat himself or herself in front of them (in a six-o'clock position) in order to keep eye contact at all times. When it comes to reduced treatment time and costs, the above-described configuration has proven to be of notable value in dental treatment procedures featuring the Waterlase iPlus© system.



Further information on the design of the add-on instrument can be obtained from the author via e-mail: huennebeck@wiesbadent.de

Editorial note: According to the author, the add-on instrument was not financially supported by any company. Moreover, the author holds the copyright to Figure 1.

contact

Peter Hünnebeck
Nerotal 6
65193 Wiesbaden, Germany
www.peter-huennebeck.de

Author details