TECHNOLOGY OFFER

Smartguide for catheterization

INTELLECTUAL PROPERTY RIGHTS

European Patent: EP20382289, Title: *Medical device for transluminal access,* of April 9th, 2020, jointly owned by IIS La Fe, the Research Foundation of the General Hospital of Valencia and the AIMPLAS Technological Institute. Currently it is in international PCT extension.

CURRENT STATE OF DEVELOPMENT

The technology is currently validated at the laboratory level. Several laboratory tests have been carried out to fine-tune the prototype that is currently at TRL 4-5.

MARKET APPLICATION SECTORS

It is a useful tool for airway management when it is necessary to intubate a patient for any reason or in any professional, hospital environment, operating rooms, emergencies or SAMU-ambulances. Applicable on any medical device for the purpose of catheterization.

COLABORATION SOUGHT

We are looking for a licensee company in the biomedical sector interested in the commercial exploitation of the technology to implement in medical devices of the airway, vascular catheters or urinary catheters areas, among others.

DESCRIPTION OF THE TECHNOLOGY

This pneumatic dynamic steerable guide with integrated expandable tube improves the current intubation aid devices, and solves the problems encountered during intubation with a guide, by allowing the endotracheal tube to be housed in the trachea without displacing it through the guide; improving the success rate and reducing the damage during the maneuver.

Approximately 2 million general anesthesia are performed per year in the world and 15% are in difficult airways that require some assistive device during intubation such as guides, stylets, etc. Currently, there are no intubation guides on the market with these characteristics, and what is used instead is a fiberoptic bronchoscope designed for another much more expensive purpose by integrating electronics that make the product more expensive.

This new guide applies several new concepts such as the pneumatic system and the expandable tube that allow to improve the procedure and extend its use not only to tracheal intubation (catheterization of the trachea) but to many other common catheterize-tions in medicine such as urinary or vascular catheterization..

ADVANTAGES

- Higher intubation rate, less injury.
- Easier performance: just one operator and one-handed.
- It Prevents the aspiration of the gastric content.
- It avoids damage to the vocal cords.
- It is reusable.
- It reduces the economic cost of 5 to 10 times compared to the disposable fiberoptic bronchoscope.

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EXTRA INFORMATION

The objective of the device is to solve the problem that exists when introducing a catheter or tube through a guide into a target location such as the trachea, for which reason the applied concept can be extended to any catheter that can be inserted into a cavity or hollow lumen. It is proposed that the tube be completely fixed to the guide and when it is properly placed in the exact location, the transmission of a stimulus through the guide, triggers a conformational change in the catheter / tube, expanding it, increasing its diameter compared to the initial one. Thus, allowing the guide to be removed, preventing it from returning to its initial position. The innovation presents several technical novelties, among them: a steerable tip, a pneumatic system around the guide, and the insertion of a catheter made of a compressed plastic material with shape memory, which recovers its original shape when receiving a specific stimulus, allowing it to re-expand and maintain its diameter until withdrawal.

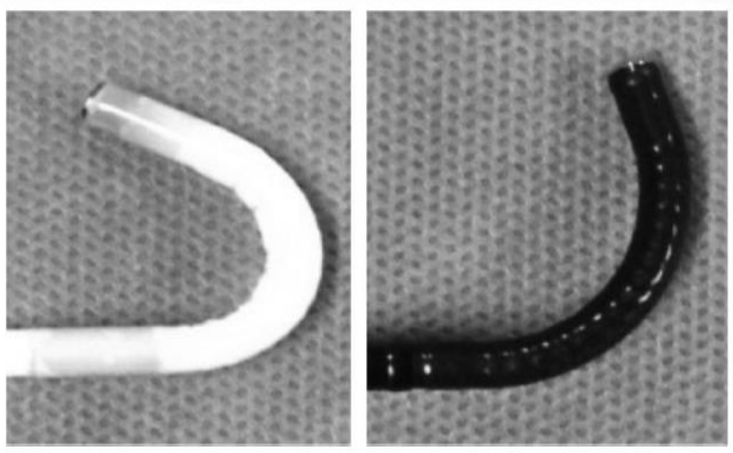

Figure 1: Driven from the tip, by means of a mechanism that allows dynamically directing the tip.

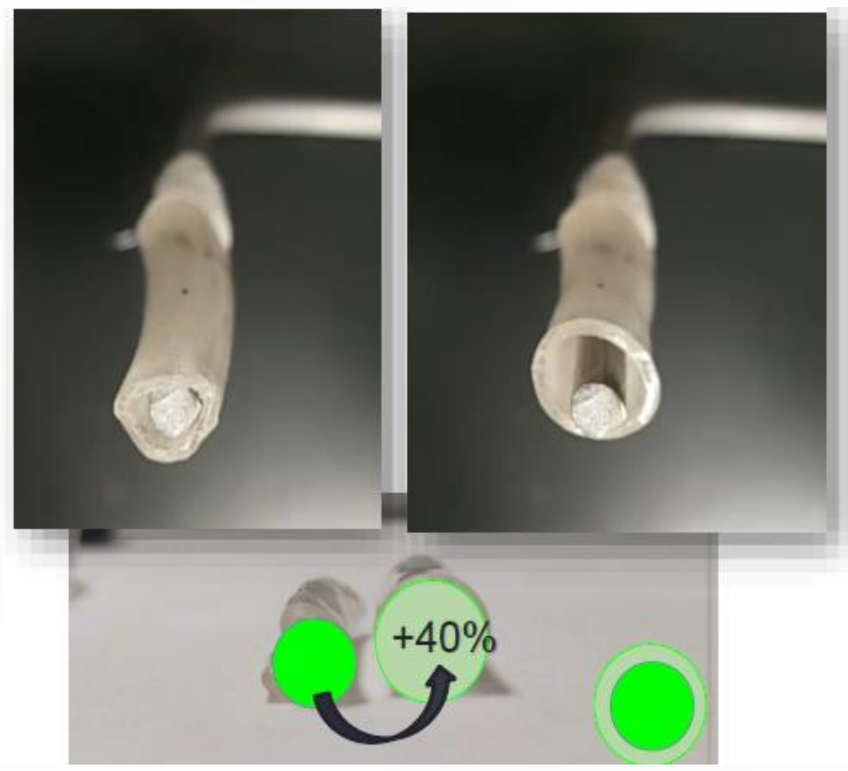

Figure 2: Plastic material that expands its diameter by 40% and maintains its shape.

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