



## TRANSLUMINAL ACCESS MEDICAL DEVICE

### DESCRIPTION OF THE TECHNOLOGY

The present invention is a medical device, Pneumatic Dynamic Steerable Guide with Integrated Expandable Tube, which facilitates tracheal intubation through its passage through the vocal chords more easily than the devices that are currently used, and once achieved, it allows to be housed in the endotracheal tube without moving through the guide.

The objective of the device is to solve the problem that exists when introducing a catheter, tube, or probe through a guide into a target location such as the trachea, so the concept applied can be extended to any catheter that is inserted into a cavity or hollow lumen, ie vein, bladder ... What is proposed is that the tube is completely fixed to the guide and when it is properly placed in the exact location, by transmitting a stimulus, for example mechanical, by pneumatic pressure inflation of the internal balloon, it expands, increasing its diameter with respect to the initial one, and thanks to the constructive properties of the device, preventing it from returning to its initial position. In such a way that when the internal balloon is deflated, the guide used during its introduction can be removed.

The innovation presents two technical novelties: a pneumatic balloon around the guide, and the insertion of a tracheal tube made of a memory plastic material,

so that it does not recover its original shape, allowing it to expand and maintain its diameter.

The guide device has a specific construction system inside designed to allow maximum flexion in two directions of the tip creating a turning arc of 135° and also maintaining a working channel (where to insufflate oxygen and be able to aspirate secretions)



### MARKET APPLICATION SECTORS

It is a useful tool for airway management when it is necessary to intubate a patient for any reason and by any professional, hospital environment, operating rooms, emergencies or SAMU-ambulances.

### TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

- It offers a higher rate of intubation on the first attempt, causing less injury as it is a soft and flexible tip.
- It facilitates the work of the operator, since it can be carried out by just one person and with a single hand, unlike the usual clinical practice that requires two toilets for this procedure.
- It prevents the aspiration of gastric contents, by sealing the trachea with pneumobulation.
- It prevents damage to the vocal cords by not having to slide through the guide, and prevents tissue damage to the mucosa adjacent to them.
- It can be reused, abandoning the use of the reusable fiberscope with a high risk of optical fiber breakage.
- It reduces by 5 to 10 times the economic cost compared to the current disposable fiberoptic bronchoscope used with the purpose of facilitating tracheal intubation
- The production of material, electronic, packaging-packaging decreases, since it only includes low-volume plastic materials.



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### CURRENT STATE OF DEVELOPMENT

Currently the technology has been validated at the laboratory level. Several lab tests have been run to fine tune the prototype that is currently at TRL 4.

### INTELLECTUAL PROPERTY RIGHTS

European Patent: EP20382289, dated April 9, 2020, jointly owned by the Research Foundation of the General Hospital of Valencia and the AIMPLAS Technological Institute.

Title: A medical device for transluminal access

### COLABORATION SOUGHT

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

### RELATED IMAGES

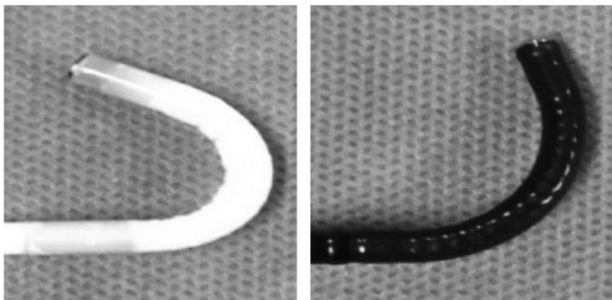


Image 1: Drive from the tip, by means of a mechanism that allows the tip to be directed dynamically.

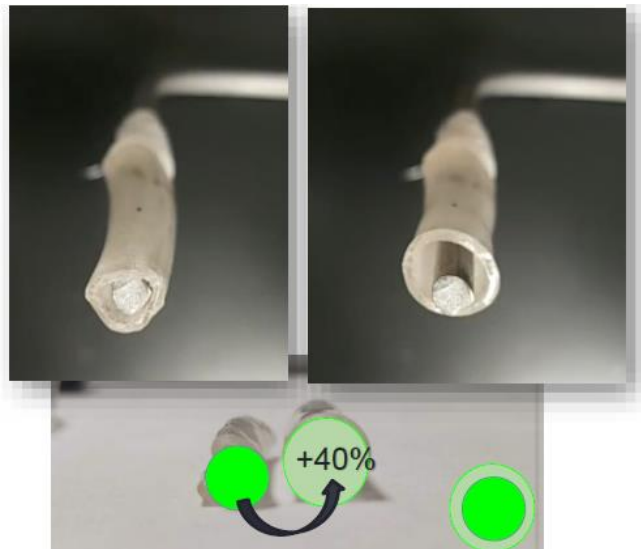


Image 2: Plastic material that expands its diameter by 40% and maintains its shape

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