

Aug. 19, 1958

J. J. TIBONE

2,847,997

CATHETER

Filed Jan. 13, 1956

Fig. 1.

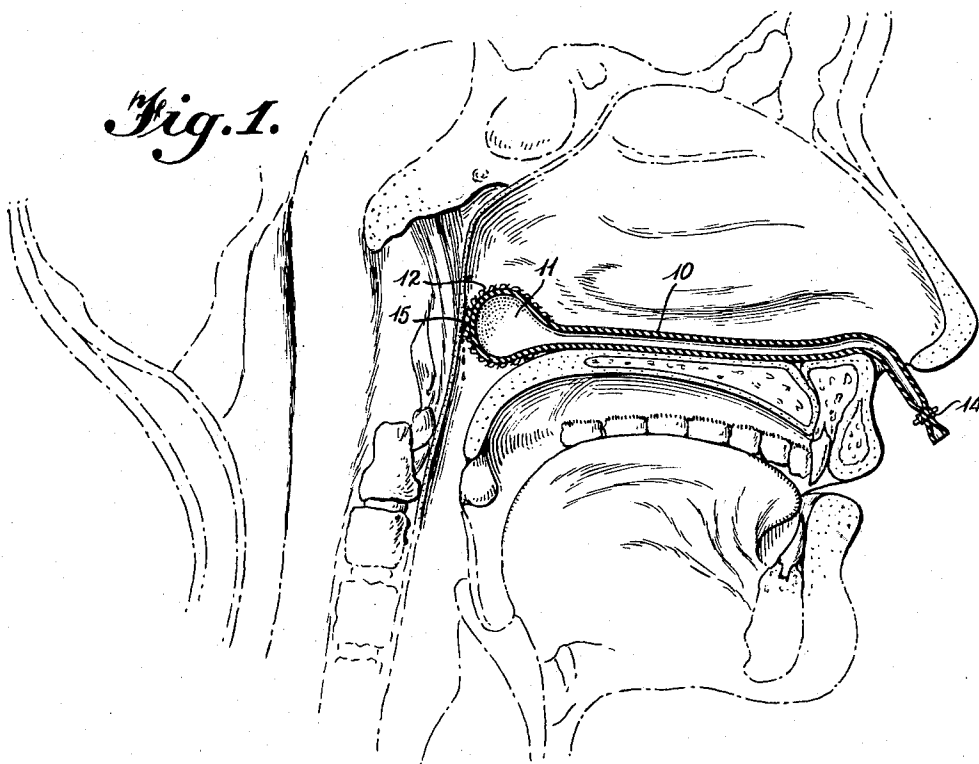


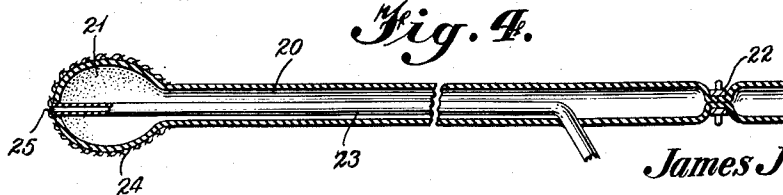
Fig. 2.



Fig. 3.



Fig. 4.



INVENTOR

James J. Tibone

BY *Steven, Davis, Miller & Mosher*
ATTORNEYS

2,847,997

CATHETER

James J. Tibone, Rockville Centre, N. Y.

Application January 13, 1956, Serial No. 558,939

9 Claims. (Cl. 128—325)

This invention relates to a catheter and more particularly to a catheter to be inserted into a nasal passage for applying hemostatic agents to the throat region. The end of the catheter is specially designed to exert appropriate pressure upon the area of the throat intended for treatment.

Heretofore, there has not been available a catheter for use to stop post-operative adenoids hemorrhage except in one instance. Prior to the advent of the present invention, it was the practice to insert a rubber catheter into one of the nostrils of the patient undergoing treatment until it became exposed in the throat area and could be seen through the mouth and grasped. In order to complete the pressure pack, a cord holding a gauze tampon was then tied to the catheter and the catheter pulled out carrying the cord until the tampon rested snugly against the raw bleeding surface.

Although this technique for treating a post-operative adenoids hemorrhage has proven satisfactory, nevertheless, it is subject to a number of disadvantages. For one reason, the technique requires too much manipulation and thus could cause discomfort to the patient and for a second reason the pressure exerted on the gauze tampon necessarily is transferred or originates from the opening to the nostril. In order to avoid these difficulties and to provide a catheter which will perform the desired functions expediently and efficiently, the catheter of the present invention was developed.

Accordingly, it is an object of the present invention to provide a novel catheter to be employed to stop post-operative adenoids hemorrhages which is simple in design and construction and more important extremely simple in use.

Other and further objects of the present invention will become more readily apparent upon an inspection of the drawings when taken in conjunction with the following detailed description.

In the drawings:

Figure 1 is a view in section through a human head showing the catheter in use;

Figure 2 is a view in elevation showing the catheter of the invention;

Figure 3 is a view in elevation similar to Figure 2; and

Figure 4 is a view in section showing a modified form of the invention.

As will be evident from Figures 2 and 3 of the drawings, the catheter consists essentially of a tube 10 open at one end and closed at the other end by a soft rubber bulb 11 which can be inflated. Coated or laminated to the outer surface of the bulb 11 is a thin layer of gauze-like material 12 impregnated with a hemostatic chemical. The catheter can be composed of a rubber component or of polyethylene possessing the requisite body or stiffness and should be of a relatively small diameter in order not to cause discomfort to the patient undergoing the treatment.

In use, the catheter of the present invention, with the bulb 11 fully deflated (Figure 2), is inserted into one nostril until it strikes the back of the throat (see Figure

1) and then air is introduced into the bulb 11 through the tube 10 to inflate the bulb to exert pressure on the bleeding area designated by numeral 15 in Figure 1. The catheter in this condition is then clamped by any suitable clamping means 14 to close the open end of the tube 10 and preferably attached by some means to the nose so that its position will be retained and the bulb 11 will remain inflated.

As will be evident, the catheter, as above described, is extremely easy to apply and can as easily be removed. Further, it is more comfortable for the patient since the pressure required originates, so to speak, directly at the point to which it is to be applied. For these reasons, it has been found that the catheter of the present invention can be removed several hours earlier than could the gauze tampon which has previously been used for this purpose and thus, the possibility of infection is lessened to a marked degree.

There is illustrated in Figure 4 a further embodiment of the present invention. In this embodiment, a main catheter 20 is provided open at one end and closed at its other by a bulb 21. The open end is provided with a clamping means 22 which permits this end to be closed. Projecting through the wall of the tube 20 is a second tube 23 which passes through tube 20 and through the bulb 21 terminating a short distance beyond the surface of the bulb 21. In this arrangement the bulb 21 is punctured or otherwise fashioned to define a suitable hole through which the tube 23 extends. It is preferred that the bulb 21 be bonded by some means to the tube 23 in order to effectively maintain the relative positions of the parts. A layer of gauze 24 is bonded or laminated to the outside surface of the bulb 21. The gauze layer is preferred to be about $\frac{1}{8}$ " thick, although this dimension may vary within limits. In a preferred form of the present invention, it is most desirable to employ a material known as Oxycel gauze, a composition prepared by the Parke-Davis Company. This material has excellent hemostatic properties, but is quite soft and fragile and cannot be boiled. This makes it extremely difficult to attach this material directly to the bulb 21 and accordingly it is proposed to combine this material with conventional gauze and to attach the combination to the bulb 21. If the use of Oxycel gauze is not feasible in certain circumstances, it is quite possible to employ regular gauze and to soak it with a hemostatic agent prior to using the catheter. The catheter, can be composed of either polyethylene or rubber, both materials being suitable. The smaller catheter 23 extends beyond the surface of the bulb 21 as previously explained and as indicated by the numeral 25.

It is significant, however, that the end of tube 23 does not extend beyond the surface of the bulb 21 a dimension greater than the thickness of the gauze layer. In fact, if the gauze layer be about $\frac{1}{8}$ " thick, then it is preferred that the smaller tube 23 extend about $\frac{1}{16}$ " beyond the bulb 21. When arranged in this fashion, medicine such as hemostatic substances, astringents or antiseptics can be introduced into the tube 23 and will flow out of tube 23 into gauze layer 24.

As will be readily apparent, the catheter described above provides a unique method of placing liquid medicine on the gauze layer 24 without the necessity of the medicine coming into contact with areas not desired to be treated. Since some hemostatic agents and astringent are caustic, the catheter of the present invention provides a unique means for directing them to the areas desired to be treated while avoiding passing the hemostatic agents over areas where their action is not desired.

Although the present invention has been shown and described with reference to specific embodiments, never-

3

theless, various changes and modifications obvious to one skilled in the art are within the spirit and scope of the invention.

What is claimed is:

1. A catheter to be inserted into a nasal passage comprising an elongated tube of relatively small diameter composed of a relatively stiff non-injurious material, an inflatable bulb of soft, resilient material closing one end of said tube, and a layer of a gauze-like material capable of being impregnated with a therapeutic agent adhered to the outside surface of said bulb and capable of expanding with said bulb when inflated.

2. A catheter as defined in claim 1 wherein said bulb is composed of a soft rubber compound.

3. A catheter as defined in claim 1 wherein said tube is composed of a material selected from the group consisting of rubber compounds and polyethylene.

4. A catheter as defined in claim 1 which further includes means for clamping off the open end of said tube.

5. A catheter to be inserted into a nasal passage comprising an elongated tube, a bulb of soft resilient material closing one end of said tube, a layer of a gauze-like material capable of being impregnated with a therapeutic agent adhered to the outside surface of said bulb, a second elongated tube received within said first-mentioned tube and having one end thereof projecting through said bulb a distance less than the thickness of said layer whereby

4

therapeutic agents introduced into said second tube will impregnate said layer of gauze-like material.

6. A catheter as defined in claim 5 wherein said second elongated tube projects through the wall of said first mentioned tube at a point remote from said bulb.

7. A catheter as defined in claim 5 which further includes means for clamping off the open end of said first mentioned tube.

8. A catheter as defined in claim 5 wherein said bulb is composed of a soft rubber compound.

9. A catheter as defined in claim 5 wherein said tubes are composed of a material selected from the group consisting of rubber compounds and polyethylene.

References Cited in the file of this patent

UNITED STATES PATENTS

1,922,084	Gerow	Aug. 15, 1933
2,090,354	Massman	Aug. 17, 1937
2,490,168	Strauss	Dec. 6, 1949
2,493,326	Trinder	Jan. 3, 1950
2,647,515	Pollock	Aug. 4, 1953
2,677,375	Raiche	May 4, 1954

OTHER REFERENCES

Surgery, Gynecology, and Obstetrics, vol. 77, #4, October 1943, pages 422, 425, 128, 349.