

MEDICO-CHIRURGICAL USES OF VULCANISED INDIA-RUBBER.

The Medico-Chirurgical applications of caoutchouc air-bags are being again brought under the notice of the profession in this country; but the merit of originality belongs to M. GARIEL, whose proposals appear to be ingenious and practically useful. We believe that our readers will find the following extracts from M. Gariel's Memoire, translated and sent to us by Mr. Jardine Murray, of Brighton, to be interesting and instructive. The wood-cuts are selected from among M. Gariel's illustrations.

FIG. 1.



FIG. 1.—Caoutchouc air-bag, which may be used either as a pessary in displacement of the uterus, as a plug in uterine hemorrhage, or as a dilator of the vagina.

FIG. 2.

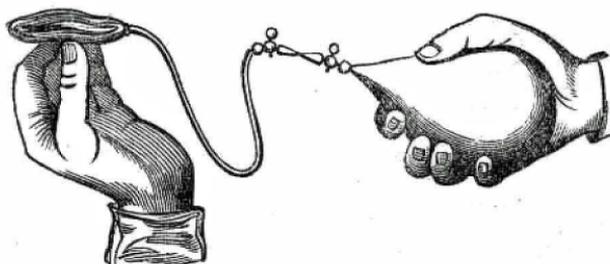


FIG. 2.—A similar air-bag of large size is here represented in the collapsed condition in which it ought to be introduced. The caoutchouc bag is distended to the requisite extent by compressing the insufflator, which is represented as held in the right hand. A ball-valve syringe may possibly be found preferable to the bag insufflator here represented.

FIG. 3.

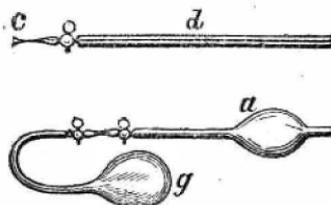


FIG. 3.—This figure represents M. Gariel's application for dilating strictures of the urethra, vesophagus, cervix uteri, &c. In its collapsed state the bulb is hardly to be detected. To facilitate introduction, the tube is fitted with a wire stylet *cd*, which is withdrawn when the end of the apparatus has been carried past the stricture. An insufflator, *g*, is then attached in the usual way, and the bulb, *a*, may be distended to the necessary degree. M. Gariel's ingenious chapter on this subject will amply repay perusal.

“ APPLICATIONS FOR DILATATION.

P. 35. B. AIR SOUNDS FOR THE DILATATION OF THE VAGINA AND CERVIX UTERI.

“ 186. The sounds with bulbs applicable to the dilatation of the vagina and cervix uteri, must (like the bulbous sounds already described—cesophageal, urethral, &c., p. 33) be introduced empty of air.

“ 187. The continuous and progressive dilatation which may be obtained by insufflation, is so powerful, that all congenital or acquired strictures of the vagina must give way before it, unless these latter be complicated with extremely hard cicatricial products (bridles).

“ 188. Their application is easy, however great the degree of stricture, since a sound 3 millimètres in diameter, may readily be made to produce a dilatation of 2 or 3 centimètres. It may be necessary, however, to use sounds

of various sizes; but it is only after having employed the smallest sounds that the larger sizes can be used.

"189. Might not this property of the bulbous air-sound be turned to advantageous use in inducing premature labour in cases of deformity of the pelvis? (Ne pourrait-on également tirer parti de cette disposition des sondes à renflement pour provoquer prématurément l'accouchement dans les cas de vices de conformation du bassin?)"

**"HEMOSTATIC APPLICATIONS.
P. 41. A. AIR-PLUGS.**

"219. These plugs consist of a caoutchouc tube, terminated by a bulb which is scarcely noticeable when empty, but is susceptible of considerable enlargement when distended by insufflation. (See fig.)

FIG. 4.

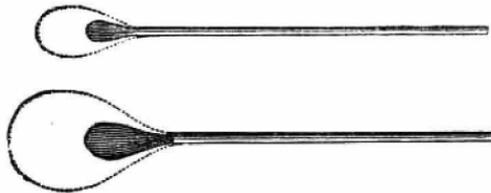


FIG. 4.—Air-bags, of various sizes, for plugging or dilating the vagina, cervix uteri, nasal fossæ, &c. The dotted lines indicate the periphery of the bags when moderately distended by air.

"220. They are applicable to all cases and to all cavities in which it is usual to resort to plugging.

"221. They are unalterable, and may remain in position during several days without undergoing the slightest decomposition.

"222. They apply themselves exactly over the parts which are the seat of hemorrhage.

"223. Their volume may be diminished at once, or by degrees, without producing any alteration in the shape of the apparatus, or any folds in its walls; the blood cannot, therefore, escape through one of those longitudinal folds which always exist when any amount of air is withdrawn from a non-elastic bladder.

"224. Should the hemorrhage reappear from their volume being too soon or too rapidly diminished, they may be re-inflated with the greatest ease.

"225. These plugs may be made of vulcanised caoutchouc, or of caoutchouc imperfectly vulcanised, which latter I prefer in this special instance. When made of vulcanised caoutchouc, their walls are too resisting to allow of their being dilated otherwise than by an insufflator, and I would rather avoid the necessity of using an instrument which may have been forgotten, and which at all events renders the apparatus less portable. Besides, in cases of hemorrhage there is often no time to lose, and I think pulmonary insufflation may be more quickly accomplished than artificial insufflation can be.

"226. These plugs are so small that they may easily be carried in a surgical pocket-case.

"227. The air-plugs suitable for the vagina, are of larger size than those for the rectum or nasal fossæ.

"228. The uterine plugs are always used successfully, except in flooding after delivery. Bleeding may always be immediately checked when it is dependent on polypus, cancer, &c.; or when it occurs during the early months of pregnancy. There is only one exception to this rule—when the os uteri is exceedingly dilatate, as after parturition at the full time.

"229. In such a case, if, after the application of a plug to the vagina or even to the uterine cavity, the flow of blood have been arrested, it were unsafe to infer that the hemorrhage is necessarily checked; for internal hem-

orrhage might be going on, and if unattended to, might cause the most serious accidents.

"230. But it is not certain that this would occur. It is questionable whether, the passages being hermetically occluded, the blood would flow in sufficient quantities to fill up the dilatable cavity of the uterus. Air is not indefinitely compressible, and there is every reason to believe that the accurate occlusion of the vagina (which may be so easily obtained) would suspend the hemorrhage after the loss of a few ounces of blood, and without it being necessary to apply direct compression at the point from which the hemorrhage originates.

"231. A very simple experiment proves how easy it is to produce hermetical occlusion of the vagina:—I take a tumbler a quarter or half filled with water; in the upper and empty portion of this I place an air-plug, which I insufflate until it presses against the wall of the tumbler. If I then invert the tumbler the water contained in it will not flow out, but remains completely shut up, although no means is employed to retain the air-plug in position. This precisely illustrates what takes place in plugging, and shows the action of the distended plug in opposing the escape of blood. It is further worthy of notice, that so closely does the caoutchouc adhere to the walls of the tumbler, that by pulling the tube attached to the air-bag, the tumbler is easily raised; and the result is the same, whether the tumbler be more or less filled, and whether it be cylindrical in shape, or conical like a wine-glass.

"232. By the use of these air-plugs we may entirely control all hemorrhages from the nasal fossæ, a circumstance explained by the solidity of their walls; but it is necessary to be careful that one extremity of the plug reach as far back as the pharynx; for, without this precaution, blood might continue to flow into the œsophagus.

"233. We must be prepared for a symptom which may occur when the plug is too much distended by insufflation. The patient complains of a painful sensation at the epigastrium, he grows pale, and the forehead is covered with perspiration. These phenomena continue as long as the plug preserves its exaggerated distension, but disappear as soon as a little air is allowed to escape, and the volume of the plug is reduced to more convenient proportions. To what cause may these symptoms be attributed? Partly, no doubt, to the fact that the air-bladder, by its excessive distension, occludes simultaneously both the posterior openings of the nasal fossæ; but the symptoms of dyspnoea and of threatening suffocation are probably not entirely dependent on mechanical obstruction to respiration; there is reason to believe that they are in great measure due to compression of the par vagum.

"234. Whence the important precept never to carry the distension of the air-bladder to excess, and never to leave the patient immediately after the application of the plug."

Those who are interested in the matter will find the various applications (compression, dilatation, confinement, plugging, &c.) of the vulcanised caoutchouc bags further referred to in the passages indicated by the following references:—

Gazette des Hôpitaux, 1849, No. 141.

Gazette Médicale, 1849, No. 45.

Lancet, Dec. 1, 1849, p. 579.

Brit. and For. Review, Jan. 1850, p. 269.

—*Med. Times and Gazette*, July 16, 1859, p. 64.