the fatal termination was so long postponed. He did not even die immediately from the sudden attack of apoplexy above alluded to; for, by dint of care, he in three months' time partially recovered from both the apoplexy and its associated right-side hemiplegia, and might possibly have lived for some years longer had he not given way to a sudden outburst of temper, which induced the still imperfectly healed cerebral bloodvessel, or some other equally weak one, to give way, and cause his almost instantaneous death in the presence of his local doctor, who happened to be with him at the time. The immediate cause of the last attack in the case of the patient with hypertrophied and dilated heart I attributed to the excitement he underwent from a horse he was driving running away. So that both cases may be said to illustrate well the necessity of always enjoining on patients similarly affected the absolute necessity of avoiding all forms of sudden mental excitement, as well as of bodily exertion.

ON THE POSSIBILITY AND UTILITY OF WASHING OUT THE PELVIS OF THE KIDNEY AND THE URETERS THROUGH THE BLADDER.

By REGINALD HARRISON, F.R.C.S.,
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IN THE LANCET of Oct. 29th, 1887, I have illustrated the use of suction as a means of extracting certain kinds of foreign bodies from the bladder, and incidentally referred to a case where I believe a renal calculus had been dislodged from the ureter in this way. In connexion with some experiments upon which this practice was based, I would now refer more especially to the possibility of distending the ureters with fluid, and thus reaching the pelvis of the kidney. In the normal condition of the parts such a process could only be brought about, I believe, by very gradual means, as the mode in which the ureters enter the bladder is to render sudden regurgitation of fluids from the latter towards the kidneys wellnigh impossible. In cases of long-standing stricture and prostatic obstruction, we see this provision gradually destroyed until the ureters and pelvis of the kidney become little else than subsidiary bladders. Again, in other instances the valve-like arrangement which prevents fluid passing along the ureters in any other than a downward direction is liable to be deranged by the passage of calculi and suppurative debris, as we so frequently see in tubercular disease of the kidney. With conditions like these, it occurred to me that fluid might be made to pass from the bladder along the ureters to the pelvis of the kidney, and this observation has suggested some trials in practice which I think are worthy of notice.

I have in the previous communication here referred to, alluded to a case where, I believe, a calculus was dislodged from the ureter by distending the bladder with fluid by means of a suitable apparatus, and thus causing a back flow along the canal, which would tend to dilate that portion of it which was below the stone, whilst at the same time some slight movement would probably be communicated to the obstruction. That the ureter was more or less dilated I thought probable from the fact that the patient had been in the habit of passing kidney stones, and had suffered much on these occasions from renal colic. Whether my conclusion that the escape of the calculus was connected with the injection into the bladder was a correct one it is impossible to say, but I thought the coincidence a suggestive one.

Take another instance. A middle-aged man was under my observation a short time ago for acute renal pain and hæmaturia, which I felt sure, from his previous history, was due to a stone in his left kidney. The symptoms continued in spite of a variety of attempts to dislodge the calculus. Then I suggested nephrotomy, but the patient would not consent. Shortly after this the position of the pain changed, and I had reason to believe that the stone had made its way into the ureter. Shampooing of the side, friction, and other means were tried, but without benefit. I then resolved to try fluid distension of the ureter. After washing out the bladder, I filled it with tepid water, upon which pressure

was exercised by the evacuator usually employed in lithotomy. The patient made the observation spontaneously, "I can feel something moving in my back." On examining the glass receiver of the aspirator bottle, after a few manipulations, I found that it contained about half a teaspoonful of fragments of phosphates and urates, not in crystals, but apparently in small pieces. These were examined by Dr. Barron, and found to be portions of a calculus. Wherever they may have come from, it was clearly not from the bladder. This process was again repeated in a fortnight afterwards, with similar results, care being taken in the first instance to empty the bladder of anything that it might contain.

A second case, very similar to the one just narrated, is also under observation, where the proceeding was followed by the withdrawal in this way of a small teaspoonful of what proves to be fragments of a urate stone.

When we take clinical facts such as these, and compare them with pathological specimens—as, for instance, the one I have elsewhere figured¹ (through the kindness of Dr. Reliquet of Paris), where an open ureter ultimately induced a calculous pyelitis,—I do not think we can deny the possibility, under certain circumstances, of our being able to distend a ureter with fluid, and thus to reach the pelvis of the kidney. When we consider that most urate stones are usually formed in the kidney, and grow, as it were, by reason of their being accidentally trapped in the bladder, the importance of securing their discharge in the earliest periods of their formation must be obvious. Further, the practice I have thus endeavoured to illustrate may possibly be found useful in facilitating the discharge of inflammatory products from the kidney, and as a means of direct medication in certain cases of hæmaturia which are generally regarded as being beyond the reach of surgical manipulation.

TEREBINTHINATES.

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THERAPEUTISTS have lately evinced a revival of interest in the terebinthines. One result of this is seen in the extended use of terebine in bronchial affections. I now invite the attention of practitioners to two other allied products, more particularly as to their use in diseases of the respiratory mucous tract. These are (1) the essential oil of the mountain pine and (2) hydrate of terpin.

1. The *Mugho* or *Mountain Pine* is the *Pinus pumilio* of Lambert, and from which exudes the once-prized Hungarian balsam. By distillation of the young branches with water a volatile oil is obtained long known as "oleum templinum" or "Krummolzöl." This is the most potent agent in the so-called "pine-cure" practised at Reichenhall and other German spas. At these resorts the vapour of the water, as it escapes into the inhalation rooms, is medicated with the volatile oil. The pine baths at these spas are not medicated with the Krummolzöl, but with a much cruder product—viz., an extract obtained by evaporating a decoction of the wood and branches, and perhaps also the residue after the distillation of the oil. Moreover, the baths are mostly employed in rheumatism, gout, and other affections for which thermal baths are suited; while the inhalations are chiefly used in diseases of the respiratory tract. By improved apparatus and greater care in the selection of the material a much finer product is now obtained—in fact, a very pure essential oil, oleum pini pumilionis; and this it is which has lately been imported under the fanciful name "pumiline." This essential oil possesses in a high degree the odour of the most fragrant variety of the pine, and, moreover, is less irritating than other fir oils. Sprinkled or sprayed about a sick room it imparts a lasting and grateful fragrance to the air, which is not oppressive and it seems to be disinfectant; or it may be thrown into a little warm water and allowed to evaporate; or it may be diffused by a steam inhaler (Dr. Lee's or Siegle's) or a hand-ball atomiser. Either of these methods may be utilised for the purpose of maintaining an atmosphere laden with pine odour as a substitute for that of Arcachon, Reichenhall, or Bournemouth. The oil can also be taken internally,

¹ The Surgical Disorders of the Urinary Organs. By Reginald Harrison. Third edition. Plate on p. 587 (from Reliquet).

and is admirably adapted for inhalation. For prolonged inhalation a few drops may be put in a suitable respirator, and will be preferred by most patients to other inhalants. For short steam inhalations ten to twenty drops may be put into any common inhaler half full of water at 150° to 160° F. and the vapour inhaled. It is, however, much better to diffuse the oil through water by magnesia, powdered silex, or prepared talc in the proportion of 40 to 60 minims of oil to a scruple of magnesia and an ounce of water. A teaspoonful of this mixture added to half a pint of cold water is to be stirred in the inhaler, and then half a pint of boiling water being added, a convenient temperature is obtained; as it cools, a little more boiling water can be added if it is desired to prolong the inhalation. This medicament will be found much milder than the vapor olei pini sylvestris (B.P.), and may therefore be employed when the official formula is found too irritating. It is a very mild stimulant to the mucous membrane, and an agreeable remedy for inhalation in relaxation, congestion, and chronic catarrhal affections of the respiratory tract. Oleum pini pumilionis is also an excellent addition to other inhalations, such as creasote and various essential oils. It disguises the disagreeable odour¹ of some and imparts its own fragrance to others. It also mixes well with eucalyptol and other inhalants. *Internally*, the ordinary dose is from one to five minims. Small doses can be taken in lozenges or on a lump of sugar, as terebine is often taken, or a mixture can be made with tragacanth &c., or larger doses may be given in capsules. In the stomach it acts as a carminative. It is quickly absorbed, and probably behaves in the blood and tissues like other terebinthines. It is eliminated chiefly by the lungs, kidneys, and skin. It is its action on the bronchial membrane during excretion that renders it valuable in disease of this surface, being a stimulant, expectorant, and disinfectant, hence indicated in chronic bronchitis, dilatation of bronchi, bronchorrhœa, some states of phthisis, and other affections. The effect on the kidneys should not, however, be forgotten. The violet odour of the urine is produced as with some other terebinthines, and small doses seem diuretic, but its use in diseases of the urinary passages manifestly requires care. *Externally*, sprinkled on flannel, or, better still, on spongio-piline, the oil is a cleanly, prompt, and useful stimulant and counter-irritant, and sometimes appears to possess slight anæsthetic properties.

2. *Terpin Hydrate* affords a curious contrast to oleum pini pumilionis. It has but a slight taste, is rather insoluble, has no odour, and is solid. It may be seen as small needles when it spontaneously crystallises from a mixture of turpentine and water, or may be obtained in large rhombic crystals by allowing alcohol (three parts), turpentine (four), and nitric acid (one) to stand in shallow dishes three or four days. Terpin hydrate is only dissolved in small proportion by cold water or turpentine, but is taken up more readily by hot water, alcohol, and ether. For this reason it is best given in pills or wafer paper. For small doses pills containing two grains each are convenient, and one can be taken every three or four hours. For larger doses, which should not be repeated so frequently, wafer paper is better. An emulsion may also be made, but this is not an agreeable method. The hydrate may, however, be dissolved in warm glycerine, and after solution an equal quantity of some syrup may be added. This makes a suitable linctus. From sixteen to twenty-four grains in the ounce gives two to three grains to the teaspoonful, and this dose can be taken every three or four hours. It is well to begin with these small quantities, as they are often found sufficient to affect the bronchial membrane, and they act on the kidneys. Germain Sée, Hausmann, Ferreira, Chéron, and others, have given much larger doses—ten grains, and in some cases fifteen. It is obvious that such doses might have a serious effect on the kidneys, and large quantities given to animals have been followed by hæmaturia. A dose of ten grains in wafer paper produces a feeling of fulness and heat at the epigastrium, and a sense of cerebral stimulation which in sensitive individuals may amount to giddiness. The effects of both small and large doses are analogous to those of other terebinthines, and it is as a tasteless, odourless substitute for them that it is most useful. In restraining the cough and secretion of bronchitis, and stimulating the membrane to more healthy action, perhaps also disinfecting the sputa, it will be found useful. Germain Sée

also found full doses restrain the copious sputa of some cases of phthisis, and he met with no gastric irritation after long continuance of the drug; but others have not been equally fortunate. In some instances small doses seem to increase bronchial secretion. It has also been employed successfully in hæmoptysis. Its diuretic effect has been utilised; and, in short, it has been tried in most cases in which the other terebinthines are useful, including neuralgias. Dr. Royland seems inclined to credit hydrate of terpin with some hypnotic property, but perhaps the sleep may be attributed rather to the rapid relief to the cough, which, in the cases he reports in the *New York Medical Record*, so constantly followed the administration of the remedy.

ON THE SUPRA-VAGINAL AMPUTATION OF THE CERVIX UTERI FOR MALIGNANT DISEASE.

WITH NOTES OF TEN CASES.

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At the present day, when we meet with a case of cancer of the cervix early enough to be able to remove the whole of the obviously diseased part, *plus* a surrounding shell of apparently healthy tissue (the broader the better), the right treatment is by the operation known as the supra-vaginal amputation of the cervix. This operation is of comparatively recent origin, and is not so generally known as it deserves to be. Before it was introduced operators were content with amputating only the vaginal portion of the cervix. When we remember that the vaginal portion is only about one-third of an inch long, while the length of the whole cervix is about one inch, it will be obvious that the supra-vaginal amputation, which removes the whole cervix (and sometimes a little more than the cervix), is an operation of a far more radical nature, and enables us to deal with cases for which amputation of the vaginal portion would be useless. It is often a nice question whether a particular case is a suitable one for supra-vaginal amputation, and in doubtful cases one that can only be settled by somebody in the habit of performing the operation. When malignant disease of the cervix is complicated by pregnancy, and yet the disease has not advanced too far for the case to be suitable for supra-vaginal amputation, the best plan is to induce abortion (as in Case 10), and allow an interval of two or three weeks to elapse, so that the vascularity of the parts may be lessened. Supra-vaginal amputation of the cervix is performed as follows:—

The patient being in the lithotomy position, a vaginal douche of some efficient antiseptic—e.g., iodine water—is given. Sims's speculum is then passed, and the cervix drawn down to the vulva.

Drawing down the uterus.—For drawing down the cervix, if the disease affects both lips, it is best to use some instrument that has its hold above the seat of the disease. The volsella is not well adapted for such cases, as it is apt to break from its hold on account of the brittleness of the tissues. A single strong hook answers well. It is passed up the cervical canal till we judge it to be well above the disease. It is then made to take a firm hold, and the cervix drawn down. It is very important that the traction should be as steady as possible, when once a good hold has been obtained. Double expanding hooks of the same pattern as Emmet's, but made much thicker in the shank so as to be less springy, are also good for the purpose, and are used in the same way. When only one lip of the cervix is diseased, a volsella with a catch like Spencer Wells's forceps, placed on the healthy lip, answers well enough, but usually the hook will be found better.

Anterior incision; separation of the bladder from the supra-vaginal cervix.—The cervix is carried well back towards the perineum, care being taken to keep it in the middle line. A sound is now passed into the bladder, and the limits of the bladder towards the anterior lip of the cervix ascertained. Guided by this information, a transverse incision is made through the anterior vaginal wall. There should be at least two-fifths of an inch of healthy mucous membrane in each direction between the incisions and the

¹ I have sometimes used oleum pini pumilionis to disguise the smell of iodoform; but the mixture should be freshly prepared, as after a few days decomposition takes place with the liberation of free iodine.