



Internal Haemorrhage ;  
its treatment

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# Internal Haemorrhage — Treatment <sup>11</sup>

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The treatment of internal haemorrhage is an exceedingly unsatisfactory one; and, among the multitude of drugs which are in repute for the stelling of Haemorrhage, some are of undoubted value, while others are only of questionable worth. And, of those which have decided action, some are used in a far too indiscriminate way. Ergot of Rye, for example, is a drug which is often prescribed for internal haemorrhage, without regard to the character of the bleeding, or

on the nature of the lesion in which it has its origin. In the course of this paper I shall endeavour to point out those cases in which its use must be beneficial, and those in which, I think, it is Contra-indicated.

Bearing in mind that Nature herself often stays Hemorrhage, we should, at all events, be careful not to increase her difficulties. And the fact that nature does endeavour to stay bleeding, and often succeeds, makes it difficult for us to properly estimate the value of drugs.

Haemorrhage from internal Organs is Commonly the result of disease in these organs, as when ulceration of the stomach Causes Haematemesis, and when Cavitation of the lung in Phthisis gives rise to Haemoptysis. But there are powerful predisponents to haemorrhage in mental excitement, and severe strain, which produce sudden Cardio-vascular disturbance and heightened arterial pressure. It happens, sometimes, that sudden augmentation of blood pressure is sufficient to lead to rupture of even a healthy vessel.

Sometimes, too, local disturbance of pressure gives rise to hyperæmia and hæmorrhage, as when Cirrhosis of the Liver causes Hæmatemesis. And, just as exhalation of blood-pressure plays an important part in producing hæmorrhage, so diminution of blood pressure is essential for the cessation of it, at all events in vessels of some size. In fact the sudden relief to local disturbance of pressure brought about a hæmorrhage is sometimes sufficient, of itself, to arrest it. And whatever method we adopt, or,

drugs employ to stay a haemorrhage, we must aim at slowing the circulation and diminishing the blood pressure in the ruptured vessel.

But before discussing the therapy of the subject, it will be necessary to have a statement of the pathology, and the conditions necessary for the cessation of haemorrhage, in order to properly understand the action of certain remedies; and, even <sup>then</sup>, it will be difficult to reconcile their use with the pathological conditions present.

When haemorrhage from a surgical wound

ceases the result is brought about, firstly, by coagulation of blood at first around then within the opened vessel so that a thrombus obstructs the orifice. Secondly, by a narrowing of the orifice due to contraction of the muscular coat and its retraction within the sheath.

In addition to these, which are chief factors in the sealing up of the damaged vessel, there is a third, already referred to, which is of the utmost assistance and must be borne in mind in considering the therapeutics of internal hemorrhage. I refer to the diminished



Blood pressure, and the weakened Cardiac power, resulting from the loss of blood. So that the haemorrhage produces conditions which are favorable to its arrest. The lessened blood pressure aids the formation of Clot, and, in vessels of some size, Clot could not form without it - but would be displaced.

The object of treatment should be to aid and promote the above natural Causes which contribute to the arrest of haemorrhage, viz; to increase the Coagulability of the blood, to lower blood pressure, & induce contraction

of vessels. . . Of drugs which after absorption increase the Coagulability of Circulating blood we can hardly be said to possess them, although certain astringents form Coagulum, when applied to the bleeding surface. But, by a carefully restricted dietary, we can increase the Coagulable property of the blood: This will be considered later on.

The term "Haemostatics", in its widest application, includes all the various measures which have been devised for the arrest of bleeding, viz; ligature, pressure, Cold & heat, Rest, Diet,

Astringent and Styptic drugs, as well as those which Control Cardio-vascular Excitement, and lower blood-pressure: these latter might fitly be included under the term "Rest", because, they give relative rest. Only a few of the above measures are available, however, in the treatment of haemorrhage in internal organs.

Wherever the haemorrhage may be rest of the body as a whole, and, as far as possible, of the organ diseased, is an essential principle. So far as drugs go, Opium will, in most instances, contribute to the attainment of

of physiological rest; it will control peristalsis in intestinal haemorrhage; will calm mental excitement and cough, and retard respiratory movement in haemoptysis.

In a case of haemoptysis the patient must assume the recumbent posture, with head and shoulders elevated. He should be advised not to talk, and his cough controlled with an opiate. Then his diet should be carefully restricted. Careful dieting is an important means of treating haemoptysis, of which, perhaps, is not sufficiently attended to in practice.

The smallest quantity of nourishment necessary<sup>11</sup>  
for the healthy nutrition of the body when  
at rest, and undergoing no exercise, should  
be allowed, and liquids should be restricted  
to the smallest amount compatible with  
health. By this means, the coagulability of  
the blood can be increased; and its  
good results are seen in Puffell's treatment  
of large aneurisms where the object, there,  
as in Haemorrhage, is to increase the  
clotting power of the blood to calm the  
circulation. But restricted diet is necessary

for

.. for other reasons. An overloaded and, therefore, irritable stomach will reflexly interfere with the respiratory movements in a case of Haemoptysis. A patient with a bleeding gastric ulcer would require to be fed per rectum, in order to afford complete rest to the functions of the stomach. In the haemorrhage occurring in Enteric Fever careful dieting is of extreme importance. Whether the haemorrhage be in the lungs, stomach, or intestines, restricted diet becomes a real means of active treatment.

ment quite as much as in Aneurisms.

Hæmorrhagic drugs may conveniently be divided into two classes.. (1) Topical Astringents and (2) Vascular Constrictants. The most important of the first group are Tannic and Gallic Acids, Perchloride of iron, Alum, Lead acetate, Nitrate of Silver, Turpentine, Hazelins, and the dilute mineral Acids. When Perchloride of iron is applied to the bleeding surface of the uterus, in post partum Hæmorrhage, it acts most powerfully as a Hæmorrhagic, but, it may be difficult to

to Comprehend how a few minims of a dilute solution of this, or other Astringent, taken into the stomach and absorbed, should produce an effect which the undiluted solution only can effect when applied directly to the bleeding surface. If these Astringents act at all in internal Hemorrhage, they must act like those of the second group; namely, the vaso-Constrictors. Some have attempted to minimize the value of these drugs when taken internally, but, in my Experience, I have found them more generally



useful than ergot, which expend its power on the muscular-walled arterioles, throwing them into spasm, while the Astringents have a Constrictant action on the whole vascular system. Besides, they will control venous haemorrhage when Ergot is worthless. Then, there is the advantage of their styptic action on the lesion before absorption, as in gastric ulcer, and when Turpentin is made to act on a bleeding lung by inhalation. That the Astringents produce, when absorbed, contraction of vessels has

been proved by experiments carried out quite lately by D. Heinz of the Pharmacological Department of Breslau University, and whose experiments are reported in Vichows Archives.

This investigation shows that very weak solutions of the following astringents; Copper Sulphate, Iron perchloride, Silver Nitrate, Zinc sulphate, when introduced into the veins of cold-blooded animals, produce contraction of these vessels. In warm blooded animals styptic effects were distinctly manifested by solutions of the following strengths; Zn. Sulph., lead acet.,

acid Tannic 5%, Silver Nitrate. Copper Sulph.  
2%, Perchlorides of Mercury and Iron 1%.

of drugs which ~~which~~ are haemostatic  
through their power of Contracting the arterioles,  
Ergot and Digitalis are alone worthy of Con-  
sideration; and the first named is the  
more powerful of the two. Ergot, whether  
it be introduced into the stomach or  
injected hypodermically, produces well  
marked contraction of the arterioles  
throughout the body, and, as a consequence,  
a greatly increased arterial pressure.

The web of an ergotized frog's foot shows the smaller vessels to become gradually contracted up to almost complete effacement of their calibre, and the result is brought about, probably, by a direct action on the muscular walls of the vessels than on the vaso-motor centres. The physiological action of the drug being as above stated, it manifestly is an agent which will control certain hæmorrhages, and its use in hæmoptysis was probably suggested by its power of controlling post-partum

flooding. But the result here is obtained by the power ergot has of inducing contraction in the pregnant and, more especially, in the parturient womb; exciting in the latter strong and continuous contraction, which compresses the vessels, arteries and veins, and, in this way, arrests hæmorrhage.

But, although Ergot is a valuable agent in controlling post partum hæmorrhage, it is not by any means the best hæmostatic in all uterine hæmorrhages. And, in like manner, though serviceable in hæmoptysis,

it

it is not always the best remedy in all pulmonary haemorrhages. If the drug be given in a routine way for every form of haemorrhage it will give disappointing results. And the point I am contending for was well illustrated in a case of Menorrhagia lately under my care in which there was an excessive discharge of dark and, occasionally, clotted blood occurring monthly, till eighteen months after marriage, (at the age of 24.), when she became pregnant. Under medical advice she had been

in the habit of taking Ergot in different forms,  
 Commencing to take it ~~at~~ a week before her  
 period was due, and continuing it throughout  
 that time, which usually lasted a week. She had  
 altered too freely throughout her girlhood, and there  
 had been no improvement after marriage. She  
 was well developed, and was otherwise healthy.  
 There was no displacement of the uterus nor tumour.  
 When I first saw her, I thought that the Ergot had  
 had a sufficient trial, and ordered saline aperients  
 along with the tonic regimen & rest at her period  
 (as usual with her). A mixture containing Magnes Sulph

Magnesia Sulphat ʒʒ, dilute Sulphuric Acid 10 minims,  
 and Liqor Strychnia m5. in each dose, two of  
 which were to be taken daily, beginning eight  
 days before the expected onset of her period, and  
 to take only one dose daily throughout the period,  
 with the addition of 15 minims three daily of  
 Tinctur of Kammanaches. And I may say here in  
 passing that, although I have frequently prescribed  
 saline aperients to be taken during the menstrual  
 period, I have never yet witnessed any  
 deleterious effects which popular notion ascribes



to their use. In this case there was immediate improvement, for, when the next period came on the discharge was much lessened; she felt better and was certainly more comfortable. After another fortnight she resumed the treatment, but her period passed, and she is now five months pregnant. As I have witnessed the same good results following on the administration of aperients, after Ergot had proved valueless, — (and one case was a parallel on to the above), — I must conclude that to the aperient treatment was due the improvement. I feel

sure that the administration of Ergot in many of these cases is a wrong procedure.

In many of these haemorrhages the discharges are just conservative efforts of nature to lower arterial tension, and, who knows, may prevent more serious bleedings elsewhere. Ergot given in these cases, & before a period, increases tension throughout the body, while aperients tend to diminish it, and relieve the condition of congestion in the ovarian & uterine vessels, and, further,

they remove constipation which is frequently present, and which mechanically disturbs the vascular pressure in the pelvis. And it is notorious that ergot has not the same influence over the unimpregnated uterus which it has over the pregnant or parturient. And, if ergot fails to contract the uterus, it fails as a uterine haemostatic. If Ergot is given in menorrhagia or metrorrhagia, it should be given as an adjunct to the treatment by aperients, and if the discharge is dark &c.

venous, then, astringents like Hazeline or Sulphuric Acid will better meet the Condition.

In the early stage of Pulmonary Phthisis before excavation has occurred, Haemoptysis arises from the mucous membrane of the finer bronchial tubes; and this may occur in the early stage of indurative Phthisis. It is quite possible, however, that a pretty severe Haemoptysis may, sometimes, be due to many small vessels giving way in the mucous membrane, without any very large lesion being visible *p. m.* to the naked eye. Now, if the Haemoptysis

Have its origin in a Capillary oozing, or  
 in rupture of a small Contractile vessel,  
 then Ergot will give good results, <sup>because,</sup> by  
 its Contracting power over the Arterioles, it  
 will in a measure cut off the supply of  
 blood to the seat of lesion. If the  
 haemoptysis be due to rupture or wound of the  
 lung from external violence Ergot, again, is  
 indicated, but only in conjunction with means  
 adopted to withdraw the blood from the lungs  
 to other parts of the body. If the haemoptysis  
 has its origin in an active hyperaemia,  
<sub>inflammatory</sub>

inflammatory, or, induced by violent effort  
 or excitement, then it will be much better  
 controlled by depletory measures, and by drugs  
 which diminish cardio-vascular excitement,  
 than by Ergot which will necessarily  
 augment arterial tension throughout the body.

If the haemaphys is the result of a  
 mechanical hyperaemia secondary to cardiac  
 flaw, then digitalis is a drug which  
 will best meet the indication, through its power  
 of restoring the equilibrium to the circulation—  
 which it does by contracting the arterioles, and by its power  
 of retarding yet strengthening

Cardiac action. Also in Haemoptysis, occurring in intemperate or full blooded people, digitalis is superior to Ergot. In these last two cases depletory measure will also be required to relieve the portal venous system.

In the late stage of Phthisis, when Cavities have formed, profuse haemoptysis may occur from their walls, or it may have its origin in necrotic division of a branch of the pulmonary artery as it traverses the cavity, or in the rupture of an aneurismal swelling in the artery wall.

In a large number of these cases it is due to

to the latter Cause. The Hæmoptysis may Cause death not so much by the loss of blood as from the Asphyxia (resulting from the mechanical pressure of the blood in Bronchi & Alveoli, obstructing the Respiration) Now, if the Conditions present in such a Hæmorrhage be Considered, the utility of Ergot becomes doubtful, and its administration becomes a serious question, and it seems to be Contra-indicated. As before stated, post partum hæmorrhage is Controlled by Ergot by its power of Contracting the uterus, and so Compressing the blood-



-vessels, arteries and veins alike., but, in the  
 lungs there is no muscular tissue so arranged  
 as to effect Compression in this way, and,  
 further, the bleeding from a ruptured vessel  
 in a tubercular Cavity in the lung is  
 coming from a vessel, so diseased and  
 softened, that it cannot contract. If,  
 then, by the use of ergot you bring  
 on spasm of the contractile arteries in  
 the lungs, and throughout the body, you  
 will only dam up the blood and  
 increase the blood pressure ~~and~~ in the  
 diseased

diseased vessel where it should be lessened  
and, of course, will tend to increase the  
bleeding.

In addition to the Astringent drugs, which are  
also entitled to be called Constrictives, and  
those which induce contraction of the  
arterioles, (Ergot + Digitalis) we have in the  
application of cold a good means of arresting  
certain kinds of Bleeding. But it may not  
be applied in every case, nor without certain  
precautions. The theory of its action in  
internal Hemorrhages is that it produces by reflex

action constriction of vessels in that part of the organ which is situated beneath the surface to which the cold is applied.

But the question may be asked, will not cold produce contraction of the superficial vessels, and, as a consequence, increase the blood pressure in the deeper parts, and, therefore, the tendency to hemorrhage?

That cold acts reflexly on distant parts the following facts prove 1, Cold applied to the surface of the abdomen will produce contraction of the uterus.

(2) Cold water dashed on the face will restore

Consciousness in a swooning person. (3) Cold water applied

applied to the nape of the neck will produce a deep inspiration, and will arrest Epistaxis.

(14) Rosbach has shown in his experiments on animals that the application of an ice-bag to the skin, as of the abdomen, affects the vessels in the trachea; the mucous membrane of which becomes pale at first, to be followed by a slight redness which passes on to a claret colour accompanied by a watery secretion. These facts prove that the application of cold, partly by local action, and partly through <sup>the</sup> vaso motor centres,

causes contraction of the blood vessels in the  
 mucous membrane of the trachea & bronchi,  
 which contraction (if the cold is kept up long  
 enough) is followed by a condition of passive  
 congestion. Cold applied to the chest will un-  
 doubtedly contract the arterioles in the lungs,  
 and will control a hæmorrhage coming from  
 these vessels or the capillaries. It is a good  
 resource in hæmoptysis, but its use requires care.  
 Its action is to increase arterial tension  
 and augment cardiac action, and its application  
 must be moderate and brief, especially in Phthisis  
 where

where, if too long applied, it will increase the  
 Congestion and breathlessness. And if applied on  
 the abdomen to arrest the bleeding in the case  
 of uterine fever its action must not be too prolonged.  
 The same rule applies to Renal Haemorrhage,  
 where Cold would likely produce Congestion in the  
 Kidneys. In uterine Haemorrhage Cold also has  
 its uses, but I must say, I have found  
 Hot water more powerful as a uterine  
 Haemostatic. In any case, the application  
 should be intermittent and not continuous.  
 In Haemoptysis and Haematemesis the sucking of

ice is very serviceable.

Having considered the means aimed at fulfilling nature's first two indications, viz; (1) to promote Coagulation of the blood, and (2) to induce contraction of the vessels, let us consider the means at our disposal to fulfil the third, viz; that of lowering blood pressure and diminishing cardiac action. The quickest way of lowering blood pressure is by bleeding an artery or vein, and, although venesection is a remedial agent little employed at the present time for the arrest of hæmorrhage, just as <sup>it</sup>

it is little employed in attacking inflammations, yet it is a justifiable and rational procedure in a haemorrhage, whether in the lungs or brain, if the heart beats strongly, and there is a condition of high arterial pressure, indicated by a full and incompressible pulse. And the quantity necessary to produce the desired effect on the circulation need not be great, for the effect produced is in proportion to the rapidity with which the blood is withdrawn, than to the actual quantity.



In a profuse Hæmoptysis where the fear is death from Asphyxia, and where a quick attempt must be made to stay the bleeding in the lung, Venesection is a rational procedure just as it is the best thing to do in a case of Cerebral hæmorrhage when there is a full and bounding pulse. And, it may here be remarked, that the pulse may be allowed to fall somewhat below the normal in any hæmorrhage, without resorting to stimulants. But supposing

the case will not allow of such treatment, we have in purgation a means similar in effect but different in degree. For, by Purging, an attempt is made to reach the same end, without the removal of blood from the body, but by withdrawing a portion of its watery element. Further, by Purgation & especially that by Salines, we induce distension of the capacious abdominal veins, and thus form a temporary reservoir for the blood, which is withdrawn <sup>from</sup> the vessels

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of the head and chest in which the pressure is lowered: and this will have a good influence in Apoplexy or Haemoptysis.

In addition to the above measures, aimed at the lowering of blood pressure, we have, in the production of emesis by the administration of nauseating emetic drugs, a valuable means

of attacking haemorrhage. of course it is not a means of general application. At

first sight one would suppose that it would prove injurious in a case of Haemoptysis.

But

But this, <sup>is</sup> not the case, for, the temporary disturbance produced by the act of vomiting is succeeded and followed by a diminished Cardiac Action and Vasular + Muscular depression which are eminently favourable to the formation of Clot, and its retention in the orifice of the torn vessel. In the Haemorrhage from the Bowel in Pueric Fever it is a measure which is certainly Contra-indicated, owing to the likelihood of it causing Perforation of the bowels.

Those emetic drugs which only stimulate the

nerves of the stomach are useless for the  
 purpose, because their action is not accompanied  
 by the same vascular reflex which is  
 characteristic of the action of the nauseating  
 Emetics, which act on the medulla oblongata  
 and other parts of the nervous apparatus.

Of these drugs the chief are Tartar Emetic,  
 Ipecacuanha & Apomorphia; and, it is not  
 necessary always to induce vomiting to  
 secure the depressant action of the drug,  
 for this can be obtained by the frequent administration

of small doses, and the action is accompanied by diaphoresis which also assists.

Higginbotham used Ipecacuanha in post partum hemorrhage in doses sufficient to produce nausea and vomiting, and Rousseau gave it in Haemoptysis to a similar extent.

By giving a nauseant emetic drug in Haemoptysis you produce a condition of vascular Calm, and diminished arterial pressure, which favours clotting, and you just anticipate nature in this, because she brings on the same condition but after a longer time and at the expense of a greater amount of blood.

Nitrite of Amyl is a drug which has been recommended for treating Hemoptysis owing to its power of reducing arterial pressure, but, it seems to me, that its action is accompanied by too much cardio-vascular excitement, and its influence on blood-pressure is too transitory to be a desirable remedy, unless it induces nausea and vomiting (as it sometimes does,

Among other means which are of use in internal haemorrhages we have Derivatives & Counterirritants, which may include

dry Cupping; & all are intended to withdraw the blood from the seat of haemorrhage, and diminish the pressure there. Diuretics & Diaphoretics have their place as adjuncts to treatment.

In the foregoing pages various measures have been mentioned as serviceable in dealing with internal bleedings, and, it is to be remarked, that they are of use only in so far as they aid nature in her own efforts - in the same direction. It has been shown that rest is an essential principle, and that




a careful and restricted diet is of great importance. In some cases it will be best to give the Astringent and Vaso-Constrictor drug, while in others, those having a vascular depressant action, will better serve the indication. And the extent to which Cardiac Depressants may be used will depend on the condition of the patient and the character of the pulse. In cerebral hemorrhage, where the danger is not so much loss of blood as damage to brain tissue, a quick attempt should be made to lower the circulation within the

the skull, and, if the pulse is imperceptible  
 and full, Venesection may be the best resource  
 or drastic purgation. Cold to the head, and  
 Counterirritants to the Extremities. As a means  
 of diminishing Cardiac Action, a subcutaneous  
 injection of 4 minims of Tincture of Aconite  
 will assist the other measures. In Hematemesis  
 arising from Gastric Ulcer the Astringents are  
 more suitable, and they can be made to act  
 locally on the bleeding surface. A Linctus  
 made up of Gallic Acid and Hazelins may  
 be sipped at frequent intervals,

alternately with small quantities of iced water.

If the bleeding is judged to be arterial, a hypodermic injection of Ergotin will prove useful. A Salin aperient draught may be given, or, if the haemorrhage is pretty severe, then it may be given per rectum.

As there is commonly a good deal of depression in this form of haemorrhage, Carbine Depressants should be avoided.

To give rest to the stomach, opium will be of service, and the patient may be fed per rectum  Having

Having doubts about the utility of Ergot in all cases of Haemoptysis I have been led to adopt the following line of treatment because it is applicable in all degrees of Haemoptysis, whether slight moderate, or severe; and I advocate it because it is efficient and it aids nature's own efforts at arrest in that it lowers arterial tension, and diminishes cardiac action, allowing of contraction of the bleeding vessel & the formation of Clot.

Medicinal treatment of Haemoptysis —

I Give Apomorphia .  $\frac{1}{8}$ <sup>th</sup> gr. injected hyps-

-dermically. (1) It causes vomiting which

assists the Expulsion of blood + mucus  
from bronchi (2) It lowers arterial

pressure and diminishes Cardiac action

II Apply Cold over bleeding lung, in the  
form of an ice-bag or cold cloths.

Should not be too long applied and  
if it causes increased breathlessness

or there is much depression apply  
hot spinal bag to Cervical region.

The action of the latter is reflex.

Cold applied over one lung controls bleeding partly by reflex action, and partly by local action, diminishing the circulation in the lung; and it has the advantage over Ergot that it does not act on the arterioles throughout the body, but concentrates its action around the seat of lesion.

### III Give a Saline Purgative

(1) It distends intestinal veins and withdraws blood from distant parts.

(2) Removes fluid & lowers pressure

To the aperient may be added with advantage  $\frac{1}{8}$ th gr Antim: Tart. Thus give the following:

℞ Ilygesia Sulphatis  $\frac{3}{4}$  -  $\frac{3}{7}$   
 Antimoni Tartarati  $\frac{1}{8}$  <sup>℥</sup> vel  $\frac{1}{6}$  <sup>℥</sup>  
 Syr: Zingiberis 3℥  
 Aquae Menthe: pip. ad 3℥  
 S. et fl. Hunt.

• S. of the draught.

IV Counter irritation to lower Extremities  
 Dry Cupping to the legs and warmth  
 to the feet. Distends vessels of leg  
 and probably by reflex action those of  
 pelvis, withdrawing blood from Chest.

V Inhalation of Spirits of Turpentine

(1) it is haemostatic

(2) it is antiseptic

VI Give a Vaso-Constructor or an  
Astringent Agent as soon as  
 the haemorrhage is diminished.  
 By this you increase the contraction  
 of wounded vessel, and help to  
 Consolidate the Clot. Thus give

the following:  $\mathcal{R}$  Acid: Sulph. dil. m.  $\overline{X} - XV$   
Tinct. Hamamelidis m.  $\overline{X} - XV$   
Liq. Opia Sedat. m.  $\overline{IV} - X$   
Aqua Camph. ad  $\mathcal{Z} \frac{ij}{ij}$   
℥: ft. Solut.

A draught every two hours —

As has already been stated the degree to which the Cardio-Vascular Depressant treatment may be carried will depend on the patient and the character of the pulse.

W. H. Montgomery