

AN
INAUGURAL DISSERTATION

ON

Hemorrhages And Hemostatics

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Hemorrhages may be divided into two classes, viz, active and passive, or otherwise into those depending upon augmentations of organic action, and those arising from debility. Boissier maintained that no spontaneous Hemorrhage is passive. That being produced by increased action, and excess of irritation of the blood vessels, they may occur with debility; but not from debility. He calls those only passive, which are owing to an external lesion of a blood vessel. Hemorrhages by some have been divided into constitutional,

or those dependant upon organic
conformation, accidental, or
those produced by some adventi-
tious cause, supplementary,
or those developing a patholog-
ical state of some diseased
organ.

When active hemorrhage
takes place in any tissue, or is
interstitial, it receives the
name of apoplexy. This occurs
chiefly in the plethoric, and
is independent of disease.

High living, the use of spirit-
ous liquors, excessive exercise,
or too sedentary a life,
exposure to the sun &c, may
perhaps be ranked among
the predisposing causes of

This form of hemorrhage.

It is commonly preceded by heaviness and increased pulsation in the part, owing to the afflux of blood, and consequent hyperemia, and coldness of the extremities.

The blood at such times, is generally of a florid red.

In such hemorrhage, the great indication of treatment is, to diminish the plethora when it exists, and to lessen the heart's action. Bleeding, purgation, cold &c, are the most available means. Astringents, and the like, have been much employed, but with little success.

Hemorrhages occurring in debility (which we will call passive), may arise from a profuse loss of blood, scorbuts, atony of the small vessels, or asthenic hyperæmia.

These hemorrhages are not preceded by excitement, or by any sign of local determination.

They are usually accompanied by paleness of the complexion, feeble pulse, syncope &c.

The indications of treatment will be to restore the action of the small vessels, and the general tone of the system. Hence in this condition, the utility of styptics, and cold externally; and of tonics and

Stimulants - such as creosote,
Mineral acids &c internally.
Hemorrhages also occur from
mechanical hyperemia, as
when hemorrhage is produced
by tubercles in the lungs,
hematemesis by disease of
the stomach.

But the variety
of hemorrhage & design
principally to consider in
this article is Traumatic, and
its remedies. By Traumatic
Hemorrhage, we mean those
that occur in consequence of
wounds of the arterial or
venous trunks. The bleeding
from one set of vessels is
easily distinguished from that

of the other. If the bleeding proceeds from an artery, it is instant and rapid, the blood of a florid red color; and ejected not in a continuous stream, but per saltum. The arterial orifice remaining wide open through the elasticity of the arterial coats, and of the heart's impulse being unobscured, much blood is lost in a very brief space of time from few arteries of any considerable size; and caeteris paribus, the nearer the wound is to the center of circulation, the more rapid the hemorrhage. In recent wounds, such bleeding is their most alarming circumstance;

and the first to claim the attention
of the Surgeon, with a view
to arrest it. The means suitable
for this end, are termed
Hæmostatics. They are of two
kinds - the work of Nature, and
that of the Surgeon.

When a vein is wounded, the
Blood issues in a continuous
Stream, of a dull, dark red color.

Dr Jones by his
numerous experiments on animals,
has demonstrated that the Blood,
the action, and even the
Structure, of the Arteries -
their Sheaths and the cellular
Structure connecting them - are
all concerned in arresting
bleeding from a divided vessel

of moderate size. It is in the following manner, viz, the artery, as soon as severed, retracts within its sheath, in violation of its elasticity, leaving the extreme portions of that sheath which does not retract being without the same elasticity, vacant, and rough of surface. In that vacant space, coagulation occurs. Particles of fibrin becomes entangled and adherent to the rough points of the inner surface; and these constitute, as it were, nuclei, on which others aggregate, to form a clot more or less extensive, or until it fills up from the circumference to the center.

Although Do Jones supposes
this to be nature's mode of arresting
hemorrhage when undisturbed, yet
he says there may be many causes
to prevent this process, and
instead of the two, external
and internal Coagula, we have
but one which is internal.

Of the Surgical means
of arresting hemorrhage. Pressure
may be used when the Ligature
is either unnecessary or inapplica-
ble. It must be early, accurate,
and steadily maintained. This in
arteries is to be made at the
proximal extremity of the
divided vessel, and is sometimes
required also at the distal,
when there is collateral circulation.

The Tourniquet, Ligature roller
Sandage compress, and the forcible
flexure of the Limb, are the
means most reliable when cir-
cumstances favor their use.

The cauteriz, caustics, and Styptics
have a different mode of acting.
The ancients mostly relied upon
the actual cautery for arresting
bleeding after the amputation
of a Limb. The hot iron
was passed over the bleeding surface
until an eschar was formed,
which checked up the bleeding
vessels. At this time such
means are almost out of use.
The Tourniquet probably deserves
more consideration as a hemostatic
means than any other appliance.

It offers a safe and effectual
means of stopping the bleeding
of an artery, when it can be
applied at a point above the
cut extremity. The invention of
this instrument has advanced
surgery in a wonderful degree.
Anciently no important operation
could be undertaken on the
extremities without placing the
patient in eminent peril;
and many wounds proved fatal,
which with this simple contri-
vance would not have been atten-
ded with such danger. The Ligature,
of all hemostatic means, is the most
sure and satisfactory; and is not
to be superseded or omitted, for
light reasons, in case of any consid-

sable hemorrhage from arterial
wounds. Although it is mentioned
as having been in use prior to
the tourniquet, yet, it seems,
that the ancients, had no just
conception of its importance.
But now it is known to be a
means which is safer, and less
painful than methods formerly in
use. From the tightness of a
ligature around an artery, the
internal and middle coats are
severed; and the internal sides
of the external, are brought
in apposition. Symplesis is thrown
out, and sometimes, in the
course of a few hours the ligature
may be removed; but it is safer
to suffer it to remain a longer period.

When adherent with the coagulum,
will be sufficient to afford a
permanent resistance to any farther
hemorrhage. There are individual
cases of hemorrhagic Tendencies,
that sometimes baffle the most
skillful treatment, with the
Ligature, Tourniquet, cold, cauterizing
Caustics, perian. &c. An instance
of this kind of profuse
bleeding from a very slight
cause, has been recorded by Mr
Blagden, in whom a fatal
hemorrhage occurred from the
extraction of a tooth. The patient,
who was twenty two years of age,
had a tooth drawn when a boy,
in consequence of which the
bleeding continued twenty one days.

A very slight cut upon the
head, was also followed by an
alarming hemorrhage; which
could not be stopped by pressure,
styptics or Ligature. It became
necessary to use the Kali persiana
which succeeded. On his having
and other teeth extracted, a
profuse bleeding followed,
which resisted the effects of
styptics, caustics, and every
means to stop up the socket.
The actual cautery was tried in
vain. The dangerous condition
of the patient seemed to leave
no other resource, but that of
tying the carotid artery - which
was done by Mr. Board; but
even this failed to suppress the bleeding.

Which eventually proved fatal.

There are also, old record instances
of death from Lacerated Lites.

In the Journal de Chirurgie,
Dr. Borden claims to have first
brought into successful use, the
Twisted Suture to arrest Bleeding
from Lacerated Lites. The patient
was an English Lady, seventy
years of age, who had forty
Laches applied to her abdomen.
After their withdrawal, ovens
of the Lites continued to bleed
as if veins had been opened
with a lancet. She had lost
all consciousness: profluere was
impossible, and cauterization
was not likely to succeed with
such an abundant flow of blood.

Dr. Borden recollecting the manner in which Veterinarian surgeons close the veins after bleeding horses resolved to try the Twisted Catgut. Pinching up the skin at the orifice of the vein - he passed a small Cambric needle through it, and passed a thread around. This was repeated at each orifice, and effectually arrested the bleeding. Dr. Borden has since frequently resorted to this plan, and always with success. Dr. Mortland, quoted in the Journal of Medicine, has lately proposed another plan for arresting hemorrhage from new cuts. He forms a small ball of a mixture

of olive oil and yellow wax,
six parts of the former to one of
the latter. After washing the
blood from the wound - he
rapidly applies it to the bleeding
orifice, pressing, and spreading it,
with his fingers. If the adhesion
does not immediately take place,
and the blood continues to flow,
he adds a sufficient quantity of
the oily mixture to form a cake
two thirds of an inch in thick-
ness - covering all the lites; which
invariably succeeds.

Montague Goffe
publishes in the London Lancet,
a still simpler mode than the
one just quoted; and for which,
he claims both originality, and

Success. The says after wiping
away the blood, softly & quietly
before any fresh coagulation
takes place, a piece of card about the
size of a Silver penny, cut
in a circular form. A wetting
card answers all necessary pur-
pose. The glazed side being applied
to the wound. This must be
pressed firmly on the bite and held
there about a minute. It will
then become firmly glued to the
surface, and will effectually
resist all future hemorrhage
It seems that the albumen
of the blood, glues the card
to the surface, and thereby
exercise sufficient pressure to
close the orifice of the bleeding

vein, and thereby repairs the
hemorrhage.

Torsion is also a mode
of arresting hemorrhage; but
it is in no way superior to the
ligature, and is but little in
use in this country. It is only
applicable in the small arteries.

^{and} Tourniquet is the
desperate resort in cases of
perilous hemorrhage, warrantable
may demand, when circumstan-
ces are favorable for its
practice; and when there are
good prospects of the patient's
ultimate recovery, were the
immediate cure by the loss
of blood removed. Blood from
a robust healthy person is

pragible. The communication
should be direct from the
emitter to the recipient
patient. Great care being taken
to prevent air or coagulated
blood from entering into the
vein of the recipient patient.
A few half pint to a pint
will generally be sufficient to
restore life and circulation.
Rapid or excessive injection
would be liable to overburden
the heart, and produce serious
consequences.

W. H. Davis