Richmond.
A Thesis on the treatment of Acute Orchitis by puncturing the testicle.

By Sylvester Richmond.

Dedicated to Professor Spence.
Acute Orchitis
and its
treatment.

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Acute Orchitis.

I have chosen Orchitis as the subject for my thesis, in consequence of a series of cases of this disease, amounting to nearly a hundred, which were only treated by a small puncture, either into the Scrotum Vaginalis or into the body of the testicle itself. I have heard this treatment very frequently ridiculed; in fact I might almost say universally condemned, both as being unjustifiable and unnecessary; but those who have condemned it have given an adverse opinion, in almost every instance, either without having seen the practice...
carried out or without having taken the trouble to inquire into the result.
I do not advocate it with any idea of it superseding the old and highly satisfactory methods of uttughful
strapping, macerating &c., each of which is attended with perfect success in certain appropriate cases,
but it will be a most useful introduction, if acknowledged in the recognized Practice of Surgery.
in those cases, chiefly, in which a rapid cure is of essential importance to the poor sufferer.

Orchitis or acute inflammation of the testicle is a disease, about which many think that there is little to be written and the
treatment of which most Surgeons are in the habit of thinking to be tolerably easy, as long as the patient will take sufficient rest, but there are very many cases, not unfrequently met with, in which in spite of rest and the best treatment, will not get better, but the inflammation runs its own course, until it arrives at the chronic stage, without being in the slightest degree checked, without being in the least by any kind of treatment. I have seen these cases such as these, treated by the most experienced Surgeons, both in private and in Hospital Practice, going on from month to month, without the slightest improvement, or relief from pain, in spite of the most rigorous treatment by the old method.
Before considering the treatment, I ought to say a few words as to the meaning of Orchitis. It is generally understood to be Acute inflammation of the testicle, but this is a very incomplete and indefinite explanation and tells us nothing or next to nothing about the pathology of a disease affecting such an organ of such a complicated structure as the testis.

In many cases of Orchitis the body of the gland is very slightly or not at all affected, at any rate in the earlier stages, and during this period when the pain is most acute, I know that this statement is contrary to all commonly received doctrines.
Acetone, but from the number of Cases, which have come under my notice, both in London & Paris, I cannot help thinking, that it is essentially and chiefly an Inflammation of the Epididymis and Tunica Vaginalis, which structures are almost always primarily affected — the inflammation spreading from the Epididymis to the Tunica Vaginalis and often proceeding no further, though the body of the organ may eventually become inflamed — That such is really the case may be proved by letting out the collection of serum, which is almost invariably ejected into the Tunica Vaginalis, when the body is found to be soft and not particularly painful.
to the touch, whilst at other times it is tense and extremely sensitive, clearly indicating that the epididymis and body of the gland have both become equally inflamed at an early period. This latter condition is not found in more than about one third of the Cases punctured and in many of these the Inflammation has existed for some days at least.

Orchitis is generally described in Books, as being either primary or consecutive — By primary Orchitis one means cases, in which the body of the testis is first affected, these cases I believe are very rare, and only result from those I have mentioned. By consecutive Orchitis is meant, that Inflammation of the testis, which is
the result of Gonorrhea or other diseases of the urethra at its posterior part, as structure, disease of prostate, the passage of instruments, calcule, or sudden excesses, even without any discharge from the urethra.

In all these cases the inflammation spreads up the Para deferentia, without anything like what used to be called metastasis, taking place. This can be proved by the account many patients give of the pain gradually extending from the urethra to the pelvis, and then down the cord to the testicle, even before there are any other symptoms of the latter organ being as yet affected. As to the fact of the discharge from the urethra ceasing upon
Upon the occurrence of Inflammation in the testicle,
that is only in accordance with what we find so
common in Inflammation in other part of the body,
when as fast as one part gets well, another neighboring
part becomes affected, and the cessation of the
discharge can apparently be explained from the
inflammation having nearly run its course in the
urethra, before it begins to extend to the vas deferens.

For orchitis is very rarely found, except in cases of
Gonorrhea, that have been going on for some time
and also in those cases, where from injections, the
inflammation has extended to the posterior portion
of the urethra, where the vas deferens opens into it,
Perhaps the inflammation of the vas deferens and testicle may act to a certain extent as a counter-irritant to the urethral affection, somewhat in the same way as a blister will often remove inflammatory action from one diseased structure to an adjacent one, as for instance when a blister is applied above the knee in Rheumatic Inflammation of that joint; and in this way the Orchitis may cause a diminution in the intensity of the inflammation in the urethra and the consequent cessation of the dis-charge; but it seems hardly necessary to have recourse to such an explanation for if we catch a number of Cases of Orchitis, or examine any of the numerous Statistics
Statistics, which have been drawn upon the subject, we find that the discharge from the urethra by no means ceases invariably and immediately upon the so-called metastasis to the testicle taking place, but that it disappears at very variable periods, either before or after the consecutive affection has shown itself.

This cessation of the discharge depends more upon accidental and local circumstances, than upon any peculiarity either in the structures involved or in the character of the inflammation, which could possibly acquire that peculiar and unsatisfactory explanation, named metastasis, which is supposed to account for inflammation suddenly leaving.
one part and attaching some other distant & apparently unconnected organ.

Having discarded the idea of metastatic taking place in the case of Acute Inflammation of the testicle from its commencement we find that the Inflammation gradually spreads along the course of the Vas Deferens, until it reaches the Epididymis, which becomes painful and swollen, especially at its lower extremity, when in the large majority of Cases the chief swelling seems to be situated, though its upper part or head by no means escapes the Inflammatory action, but becomes enlarged considerably, though rarely to an equal extent.
with the lower portion. After a few hours or perhaps
days, effusion begins to take place into the tunics vaginalis
and the whole side of the testis becomes increased in
bulk, and soon reaches two or three times its normal size.
The pain and tenderness increase in intensity and become
almost unbearable, so that the poor sufferer can no
longer bear the slightest touch and is almost unable
to walk. The digestive disturbance is very excessive, the bowel
become constipated and the patient is utterly unable to
follow any occupation.

Such is a case of Orchitis as one ordinarily meets with
it. Upon what does the severity of the symptoms
depend?
The generally received idea is that the structures, of which
the testicle itself is composed, become involved in the inflammation and that the pain and constitutional suffering are caused by the pressure of the inflammatory effusion upon the nerves of the organ.

This pressure is caused by the unyielding fibrous covering the Tunica Albuginea, which binds down the substance of the testis and prevents any appreciable swelling of the excessive congestion or body of the gland when inflammatory effusion occurs.

I am not prepared to deny that this inflammation is often to a certain extent the cause of the pressure, yet I cannot help thinking, that there is another and more common cause of the great pain, a cause which I have never been mentioned in books and one to which is most
external cases, a large portion of the swelling is due — namely, the effusion into the cavity of the tunica vaginalis, which is found to exist in at least nine tenths of the very acute cases.

This effusion is clearly the result of the inflammation spreading from the epididymis to the tunica vaginalis, the serous sac, which so closely invests both testicle and epididymis, and which is to prone, like all other serous membranes, to take on inflammatory action, when adjacent parts are affected.

The effusion consists of a whitish, limpid serum, highly albuminious, which does not coagulate spontaneously.

To the collection of fluid, which presses upon the inflamed epididymis
epididymis on every side may be attributed much of the
pain which is to be seen in this disease, and they chiefly did
for coming to this conclusion was the discovery of the
great relief experienced by the patient after evacuating the
fluid by means of a small puncture, through the serous
into the sac. But why should this small collection of
fluid, which only amounts to from two or three drachms
to half an ounce, cause so much pain, when the ac-
cumulation of a pint or more of fluid in a hydrocele,
casts no pain whatever? The explanation of this seems to
be that the rapidity with which the effusion takes place
does not allow the tunica vaginalis to accommodate itself
to the unexpected collection of fluid in the same way, and
cases when the fluid is slowly forced out into its cavity, as in
hydrocele, in addition to this, the inflamed epididymis
is so exquisitely painful, that even the slightest tension,
caused by the effusion of serum, is quite sufficient reason
to account for the intense pain suffered in Orchitis and
beside.
the parietal layer of the tunica vaginalis, as well as the
visceral, which cover the epididymis, becoming implicated
the inflammation spreads to the adjacent thin of the
testis, which becomes edematous and tense, with a
more or less polished surface. This inflammation and
edema of the testis does not exist in every case, in
fact it seems to depend to a great extent upon the
character of the inflammation generally present. For
one meets with half a dozen consecutive cases in which the evidence of the serotum is present. Then it seems to disappear for a time, all cases being free from any inflammation in the skin of the serotum. I noticed this while attending the hydrophilic Hospital in Paris, where I was present during the active period. I have no doubt that all the cases admitted into this Hospital were of the same type — the serotum was acutely inflamed and there was a great tendency to sloughing of its skin — to prevent this dangerous result M. Cases, the surgeon used to take a lancet and make several small punctures into the serotum, with the view of letting the serum to escape both from the tunica vaginalis and from the adherent cellular tissue.
cellular tissue of the inflamed serous, but he never intentionally punctured the body of testicle itself. The knowledge. This epidemic of acute orchitis my lasted about one month, after which all cases appeared similar to generally the same character as do in Lower Great Britain and the puncturing was discontinued. I thought no more of the case, until my return to London, where I heard Mr. Henry Smith of Kings College, mentioning a case of orchitis, in which he punctured the testicle on the supposition that suppuration had occurred in the tunica vaginalis and in which the result was most successful, though nothing but serous fluid was evacuated. The relief from pain was immediate and the treatment resulted in a rapid cure of the disease.
I informed Mr. Smith that whilst in Paris, I had seen very successful and rapid cures effected by puncturing the Tunica Vaginalis. Mr. Smith determined to carry out the treatment in all cases presenting themselves at the Hospital, in which there seemed to be much tension from effusion; but instead of merely making a small puncture into the Tunica Vaginalis, he boldly dug a small curved abscess knife into the body of the testicle, with the double object of letting out the fluid from the Tunica Vaginalis and at the same time lessening the tension within the unyielding Tunica Albuginea by allowing of the escape of blood and effused inflammatory products.

For more than two years in almost all the cases treatment would succeed in accordance with this.
of Orchitis treated at King's College Hospital. One or other of these methods has been adopted and the results both with regard to the relief experienced and the rapidity of the cure, has been most highly satisfactory.

In all these cases treated by puncture after the loss of the testicle the result has been highly successful, for the relief from pain is immediate; though the patient generally feels a little pain for a period not exceeding a quarter of an hour, after which he is able to walk back home and frequently to continue his work without laying up at all.

Anyone unacquainted with this apparently heroic treatment would expect, in accordance with these but not uncommon expectations
errors occur within, to find protrusion of the substance or tubule of the testis; but this accident very rarely occurs. In fact, I have never heard, and cannot find any recorded instance in which this misfortune happened, and I find no reference to work on the testicle, a distinct denial of the fact; this in wound, of the testicle, protrusion of the spermaticous tube, is likely to occur and authorities on this subject clearly state that wounds of the organ generally heal very readily and without any such unfavorable accident.

The hemorrhage after the operation of puncturing the testicle is rarely very severe, in some few cases bleeding to the amount of ten or twelve ounces has taken place, but this seems to be have rather a
Salutary effect than otherwise, for the cases in which it has occurred have done the best and have been the speediest cure. Still bleeding is to be avoided always if possible. It has never been to produce a to require mechanical means to stop, in fact it has never been necessary to place the patient even on his back, which I imagine, combined with a little pressure, would be the speediest means of stopping any excessive hemorrhage from a fractured testis.

The plan of treatment by simply puncturing the Inguinal Vaginae, with the point of an ordinary lance, has been equally practiced at King's College Hospital during the same period and the success attained...
has fully equalled that obtained by the other more
serious and more formidable operation of wounding the
spleen itself. It is a much simpler method of treatment
and one to which I think few can object, since it is always
painless and must be free from any of the numerous
objections, as haemorrhage, protrusion of the seminal
tubules, urged against the other more painful
operation.

Cases of Orchitis ought to divide, under different heads
according to the predominance of any special
symptom, for in one doubt, but that in some cases
effusion into the tunica vaginalis is the most marked
symptom, with or without inflammation of the serosa.
in the affected side, whilst in others the inflammation

certainly seems to be chiefly centered in the body of the
organ, the other tissues escaping the extreme severity
of the attack.

The treatment by puncturing the testicle is more
especially applicable to the latter class of cases, in
which we doubt, the tense, fibrous covering binding
the inflamed and irritable turberle, of the testis,
and is the chief cause of that extreme suffering, sueh
is to relieve by a puncture into the substance of
the testicle, which at the same time that it take off

tension from the part, withdraws a variable quantity
of blood, the loss of which most apt to in much the same
way
way, as local bleeding does in other parts of the body, and by diminishing the congestion of the gland or in any other way pathologists like to explain the action of local abstraction of blood from an inflamed part to relieve the inflammatory action going on in the affected tissues.

In those cases in which the serious effusion is the predominant feature, and which, judging from the cases which have come under my notice, I consider to be the most numerous class—a simple puncture with the point of a lancet is amply sufficient to relieve the acute pain, by allowing the confined fluid to escape from the inflamed tissue. Desjmefianio
and to take off all pressure from the Epididymis,
at the same time a local abstraction of blood is effected
by the bleeding which takes place from the puncture,
which can always be made to as to wound one of the
enlarged veins of the testicle.

In all those cases in which the disease has not been cured
as once, either by a single puncture into the Tunica
Vaginalis, or by an incision into the substance of the gland
a repetition of the operation has never failed to
effect a rapid cure, as occurred in a case
Case I.
which was admitted into H. C. Hospital, in which case
whilst an out patient of the Hospital, Mr. Smith
had punctured the testicle with great and immediate
relief.
to the intense pain, but the fluid again accumulated with symptoms, somewhat resembling those of suppuration in the case of the Janvier Vaginalis, on this supposition a second puncture was made into the sac, but this time the testicle itself was not punctured as in the first operation. The supposition that suppuration had occurred proved incorrect and nothing escaped but a red serum fluid without a trace of pus to be found in it, but the relief was equal to that felt from the first operation - the inflammation subsided the swelling diminished considerably and the patient went out of the hospital cured.

In this case, in which both plans of treatment were adopted, the incision of the testicle failed to cure the disease and
the pain and swelling returned, but the simple puncture
into the tunica vaginalis only succeeded so rapidly in relieving
the acute symptoms and in effecting a cure.

I will now mention an obstinate case in which the tunica
vaginalis was punctured on two or three occasions, without
causing any great relief. The case was that of a constable,
who had an acutely swollen testicle on the right side. There
was a considerable collection of fluid with very intense pain,
and the epididymis could not be felt. I made a free
puncture into the scrotum, which allowed the fluid to escape,
with little or no bleeding. The relief was instantaneous and
the constable was enabled to resume his work as a night
constable during that same evening. Two or three days after
be came to the Hospital again, suffering as much pain as at first and he requested me to repeat the operation. Which I accordingly did - letting out a considerable quantity of serum and giving considerable relief - he resumed his work for a few nights more and then applied for the third time. On this occasion the puncture was followed by considerable bleeding and no further operation was required. I have since seen the man and he stated that after the third operation the cure was complete.

In the following case both testicles were punctured with immediate relief. John Thomas, a railway porter applied as the patient as an out Patient with a very acute attack of orchitis, which it had affected both testicles and had
incapacitated him from following his occupation for some days.

There was a considerable collection of fluid in both the tunics vaginalis of both testicles and the man could scarcely move from the intensity of the pain. Dr. Smith immediately punctured both testicles, send the knife into the body of each gland. The man fainted - a large quantity of serum and some blood escaped. On recovering from the fainting fit he expressed himself as feeling that he felt greatly relieved and said that the pain was gone, except a slight smarting from the edges of the wounds. He walked home and recommenced his work the next morning, feeling as he said, quite well and without having any return of the symptoms.

At the Case of W. Rogers acute orchitis, following a malarial fever. 
applied as an Out Patient. November 25th Testicle strapped.
Nov. 25* applied again - no relief. All the symptoms continued increased. The strapping was removed and the testicle was punctured - 36 of serum and some blood escaped. In a quarter of an hour the pain had almost disappeared and the patient walked home.
Nov. 25* All the acute symptoms had disappeared.
Nov. 30* Symptoms entirely gone - Testicle somewhat enlarged. The patient did not return.

Case IV. A. McGray - Out Patient. Kings College Hospital.
Nov. 28th
Acute Orchitis 3 days - Considerable tendinitis. No fluid present into the tunica vaginalis could be discovered. In this case the body of the gland was chiefly implicated.
Testicle punctured - Blood but no serum escaped. The pain had
pain had nearly disappeared when the men left the hospital
within half an hour after the performance. He returned again
on the second day after the operation. Nov. 30th All pain
had ceased. The diminution in size of testicle continued
himself cured.

Case V. G. Doe applied at the hospital with orchitis of
5 days standing on Nov. 16th. There was a large accumulation
of fluid in the sac of the peritoneal. The fluid,
which amounted to an ounce and a half, was evacuated
by a small puncture into the sac and great relief was
immediately experienced. Nov. 16th 3rd afterward. The man
applied at the hospital again and said that he had not
suffered any pain since the operation and the inflammation
had entirely subsided. In this case the testicle itself were
prostate which could be uncovered through a

became inflamed, though the epididymis was a little enlarged and very tender to the touch.

Case V. E. Cottrell came to the Hospital suffering from March 20th.

Acute Orchitis. — The Janica vaginalis was distended with fluid — about an ounce of serum escaped from a small of Janica vaginalis.

Junction made into rectum & life with immediate relief and cessation of the acute pain and tenderness. Five days afterwards the patient presented himself again and the orchitis was perfectly cured.

When I left London, early October, there was a patient in the Hospital suffering from Stricture of the urinary. The cause of the stricture was a calculus in the prostate, which could be occasionally struck with the
catheter; when employing the bladder was paralyzed re

This man, one morning, was attached with orchitis, on the
left side; the symptoms were exceedingly acute, but he was
so ill from the disease of his bladder and probably his
kidney also, that no constitutional treatment could be
attempted, but I firmly believe that if, at first, the
patient had allowed me to puncture the tunica vaginalis,
whilst the inflammation was at its height, he would
have been spared a vast amount of suffering and I
regret that nothing was done to relieve him except
the application of hot fomentations
and a broken shaft at night. This man has
subsequently died and on opening the Tunica vaginalis,
a very large collection of pus was found in its cavity, but there was not the least trace of inflammation in any of the structures of the testicle, although death took place about ten days only, after the occurrence of the acute symptoms in the scrotum or, as was supposed before the Post Mortem examination took place, in the testicle. In this case the pain could not have been caused by inflammation of the testicle, which had subsided in so short a time and yet left the Scrotum Vagiinalis distended with pus. It must have been due to the inflammation of the sac itself and the adjacent skin and the fluid, either pus or serous, whichever it might have been at the commencement
of the attack, it matters little, but the fluid must have
compressed the testicle, which was not otherwise affected,
and distended the sac of the Tunica Vaginale, and so
casued the very intense pain suffered by the poor patient.

I have now given several cases as instances of this disease
and of the results obtained from the plan of
puncturing, either the Tunica Vaginale or the tunica
body of the testis itself.

From these cases we may conclude, that the same
plan of treatment is not applicable to all cases
of orchitis, and that those cases in which there is
much effusion into the Serous sac should be treated
differently from those in which the body of the plan.
is the chief part inflamed. For example in the first case I have mentioned, Page XXXVI the incision into the tunica vaginalis alba, allowed the collection of serum to escape and the disease was rapidly cured without any return of the pain, whereas the puncture, made into the body of the testicle, failed to effect a cure and was an unnecessarily severe operation; but on the other hand in the case of the catman, where the tunica alba of Page XXXIV, vaginalis was alone incised, I believe, that if the at first puncture had been continued into the testicle, it would not have been necessary to repeat the operation on three different occasions. I came to this conclusion from finding after I had connoted the term from the
tenia Vaginale, that the body of the gland itself was very
considerably inflamed and enlarged, and though not
very sensitive when handled, it was extremely hard and
tense, as was also the upper part of the Epididymis. If in
this case the puncture had been made into the body of
the testicle, the fluid would have been let out of the
Ureia Vaginale and the great tension of structure,
within the Ureia Albuginea would be relieved; have
been relieved and at the same time the bleeding,
which always occurs to a greater or less extent after
a puncture into the testicle, how would have had a
most salutary effect and would have probably
been at once reduced the inflammatory action.
I am only advocating this operation, as one which is
tended to serve useful in certain cases obstructive cases
of Acute Orchitis, which often result all the methods
of cure usually made use of, and which get into a
chronic state and frequently leading to testicular
injury permanently enlarged and severely diminished due
to the performance of its functions, and in these cases
where a speedy cure is absolutely necessary
for the patient and circumstances render it difficult
or even impossible for him to remain in the house
or not in bed actually in bed; but I do not intend
to imply that the practice of puncturing the
testicle is likely to be either a useful or advantageous.
Advantageous treatment in all cases of orchitis, but I am firmly convinced that it is of great advantage, in those cases, occasionally met with, in which the inflammation has rapidly extended to and implicated the body of the gland at a very early period, without any very little slight, perceptible effusion into the Tunica Vaginalis and in which the pain and suffering are very acute and often altogether out of all proportion to the apparent extent of structure involved.

The simple puncture of the Tunica Vaginalis, I consider to be of much more universal application than the incision into the body of the testicle, as
as it may be employed without any danger of sub-
sequent complications arising out from the treatment,
and as the puncture invariably heals up in the course
of twenty four hours, either with or without a great col-
lection of fluid taking place. There are few cases in
which a simple puncture will not be beneficial, as
effusion into the Tunica vaginalis is one of the earliest
of most invariable symptoms of acute orchitis, and
when the tension is taken off the inflamed epidy-
=

dymis is by the evacuation of the effused serum,
and by the local abstraction of blood, which is gen-
mally effected at the same time, by means of the puncture.
The pain is greatly relieved and external...
pressure may be not much more advantageously applied. At any rate, after the fracture, the application of绷带 by means of strapping, is attended with much less suffering and annoyance to the patient, with a greater chance of its being effectually & equally applied.

Having given a short account of the causes and symptoms, and having entered at considerable length into the history and pathology of this common disease, giving my own rather novel ideas on the subject - I have detailed numerous cases, as temptation instances, in which this new method of treatment has been carried out and I have given the results of many of these cases.
cases, as they were noted down at the time, the
patient presented themselves at the Hospital, these
illustrating the methods of treatment - viz. that of
puncturing the testicle itself and that of oneself over
incising the anterior vaginalis, without wounding the
body of the fluid at all and drawing off the semen.

I have been inclined to consider the above

I might have entered at much greater length
into the different advantage, derived from the
many other methods of treatment, usually employed
by surgeons, and compared them at greater length
with the two new methods, which I have ventured
to bring forward as something novel and eminent.

By successful, as proved by the excellent results,
result of the very numerous cases treated by at King's College Hospital; but I have been compelled by the necessarily circumscribed limit of my paper and by want of time, owing to the lengthened and protracted illness, which has prevented me from revising and rewriting a large portion of this thesis. I have been compelled to conclude with the above short and hasty remarks.