On Twelve Cases of Phthisis Pulmonalis treated with the Arsenical preparations.

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In Twelve Cases of Phthisis-Pulmonalis treated with the Arsenical Preparations

Professor H. C. Wood in his treatise on therapeutics places Arsenic along with the so-called "Alternatives" on account of its Mode of acting on the Nutritive Processes of the Body.

In Bartholomew's Materia Medica, 4th Ed. p. 140, we find the effect of Arsenic on the function of Nutrition... is as yet involved in doubt. It is a recognized fact that Arsenic promotes Constructive Metamorphosis when administered in medicinal doses... the have no single drug of equal utility in the Chronic forms of Phthisis... It is said and this statement corresponds with the Author's observation, that when there are much hectic and rapid
integrated is the pulmonary tissue, arsenic is not beneficial."

Professor Reiner in his handbook of therapeutics 9th Ed., page 321, says: "Arsenic has lately been extolled in phthisis and tuberculosis. It is said to improve the appetite, increase assimilation, lessen expectoration and cough, and to promote the cicatrisation of cavities. It is stated that it will reduce the temperature in tuberculosis, and after careful investigating this subject, I am inclined to believe so; and he considers that the action of arsenic in phthisis and tuberculosis is well worthy investigation.

In chronic phthisis Professor Jacquot of Paris, so soon as the phenomena attributed to anaemia have been remedied by iron or in the absence of
Amelioration after a delay of a couple of months, abandons ferruginous preparations, and has recourse to Arsenical Medication. He employs exclusively granules of Arsenious Acid, of $\frac{1}{10}$ of a grain each, and administer them at the commencement of each of the two principal meals—Arsenic, he considers, acts powerfully upon the nutritive processes in Chronic Pulmonary Phthisis. It quiets the nervous excitement, and possesses an anti-febrile action sufficiently marked to effectively combat the evening intermittent fever. (Naphthyl Medical Therapeutics, 7th Edition, page 184) In ten out of the twelve cases I have tabulated a more or less marked improvement in the general condition, especially the nutrition.
of the patient took place soon after the commencement of the treatment, the food apparently being assimilated with greater ease and more perfectly.

I have employed pure Arsenious acid, the Liqueur Arsenicalis of the British Pharmacopoeia and the Todicide of Arsenic. On several occasions when symptoms of intolerance to the drug manifested themselves I found that they disappeared upon changing the form of administration. The "Todicide" I employed when there seemed to be a more marked irremovable faint. With regard to the dose I usually gave a small one, and did not increase it during the course of treatment, from about the 1/20 to 1/60 of a grain of the Arsenious acid or of...
the Tincture of Arsenic, and from one to three minutes of the liquid Arsenicale. The dose repeated three times a day, one hour after food, or when it was combined with Iron immediately upon food.

Cases Numbers I to V are in accordance with the statements already referred to, as to the utility of Arsenic in some of the Chronic forms of the disease, and case No. IV may be mentioned as a good example of the interstitial or fibrinous type. In this latter case the disease had already existed nine years, commencing after an attack of pleurisy, and he had already lost a brother and three uncles of phthisis. At the time that he first came under my care
The debility was extreme.
For some months prior to this temperature had been high, varying from 99½ to 102°. After she had been under the arsenical treatment for about a month the temperature fell to 99°, or even normal in the morning, and rarely afterwards exceeded 90°. The amelioration in the other symptoms is detailed further on in the treatment of the case. I may also mention that Arsenic had never before been prescribed for this patient.

In the whole however Cases No. VIII to XI gave the most satisfactory results, the patients being all females, and suffering at the same time more or less from anemia or Chlorosis, more particularly Case No. VIII where the Anemia was severe.
and had developed rapidly during the last seven months, since the arrest of the menstrual function. The attacks of dyspnea at times were most distressing and the nervous exhaustion great, in fact it was thought by her relatives that she was rapidly sinking. In this case the Abstinence Combined with Iron appeared to have a very marked effect after being administered for about ten days. The monthly period returned in the course of four months, the dyspnea and nervous symptoms also gradually disappeared. This was a case of expectant phthisis which in all probability would rapidly have developed had the anemia not been checked.

Dr. Byron Bramwell in
the "Medical Times and Gazette" of September 1877 drew attention to the successful results he had obtained in progressive pernicious anaemia by employing one or two minims of the liquor arseniicus three times a day. Now in some of the above cases (\(\text{111} \text{ to } \text{117}\)) the anaemia was also the derangement of the menstrual function was very marked, and such cases seemed to derive more decided benefit from the treatment.

I may in passing remark that in four typical cases of chlorosis which I have had under treatment during the last eighteen months, and in which iron had been given without success, I obtained satisfactory results upon prescribing the liquor arseniicos and liquors ferris perchloridi.
Combination, menstruation reappearing in one case after an interval of four years.

The foregoing remarks as to the utility of Arsenic where Anaemia is present are also in accordance with the statement made by Professor Bartholow at page 142 of his Materia Medica 4th Edition, where in speaking of Anaemia and Chlorosis he says, the efficiency of iron in these disorders is much increased by combination with Arsenic.

The action of Arsenic upon the Anaemic Statur has been especially directed upon, as in Phtisis the blood always becomes more or less impoverished, and in females Chlorosis is often present.

With regard to Case No. 87 it was evident from the
first that the lung tissue was undergoing rapid disintegration and the administration of Arsenie appeared to have no effect in arresting or modifying the course of the disease. In this instance however the drug was not given until the already advanced stage of the disorder, and after the formation of Cavities. Upon the failure of Arsenie other means were tried but the case tended rapidly towards a fatal termination.

No. 111 a typical tubercular case was remarkable on account of the rapidity with which the fatal symptoms supervened. The patient had been brought to Eastbourne to visit his aunt for
a change of air by his brother, who called upon me the same evening, and had no idea of the serious nature of the case. A London physician had been consulted some weeks previously, who advised sea air. But evidently, at that time, the disease had not assumed so acute an aspect. After examining the patient and finding the symptoms, as noted, I explained the extreme gravity of the case to his relations and told them that it might rapidly prove fatal owing to the brain having become involved. The next morning the coma and paralysis seemed so complete that I hardly expected any amelioration in the symptoms prior to
death. The relatives were however most anxious for him to regain consciousness as they feared that he had lately been leading a rather reckless life. I administered the $\frac{1}{800}$ of a grain of the Zodic of Arsenic every two hours up to eight doses when to my surprise the patient became gradually conscious and on my next visit I found him sitting up in bed taking some nourishment.

He subsequently became delirious only at intervals and at the time of his death, two days later, he was repeating the verse of a hymn. Is it possible for the Zodic of Arsenic to have temporarily checked the course of the disease or even helped in the absorption of any effused fluid?
A post-mortem examination of the brain, had it been permitted, would have been interesting.

In conclusion the may fairly assume that though Arsenie has no specific action upon the different forms of Pphthisis Pulmonalis yet it possesses of much value on account of its beneficial effects upon the general condition of the patient, and thereby delaying the course of the disease, or if it be administered in the Earliest Stage by even arresting it.

As far as I can judge it seems to be of special value in the case of females where a certain amount of anaemia or Chlorosis is present in such cases the best results are
obtained when it is combined with iron.

Dr. Cutler and Bradford state that when Arsenic is first given in cases of simple anemia there seems to be an increase of both red and white corpuscles (see Ringer's Therapeutics, 9th ed. p. 214).

In the "interstitial" or "pituitary" variety, the arsenical preparations are also of considerable service in retarding the progress of the disease, the general nutrition of the patient undergoing marked improvement, and in those cases where there is a tendency for the temperature to remain rather high, it often falls to normal in the course of five or six weeks, as in Case No. 14.

Some benefit may
Also be derived from the Arsenical treatment in the early stage of the "tubercular" form, but when there is rapid disintegration of the Pulmonary tissue and hemoptysis it is apparently of no service. A striking feature is the increase in weight observable in those patients who derive benefit from the treatment, the increase being coincident with a gain in strength. As a rule I have found Cases Carefully weighed once a month. The appetite is improved and in several instances I have observed the tongue which before was dry and furred to become cleaner and moist. The tendency to diarrhea when it exists is lessened (Cases VII + XV).
and patients who before could take but little of any exercise owing to the dyspnea were after a month's Arsenical Treatment able to do much more without inconvenience (cases IV and VIII). This agrees with the idea of the "Styrian Arsenic Eaters" as investigated by Professor MacLagan, who take the drug to enable them to undergo great exertion without fatigue such as to Climb Mountains. In most of the following cases I have also noticed that the pulse became stronger and steadier. With regard to the actual state of the lungs, the expectoration in several instances became dryer in character, otherwise the physical signs remain much the same, still considering
the general improvement in the symptoms that follow the use of Arsenic it may be anticipated that it will yet be more extensively used in the treatment of phthisis pulmonalis.
George W., aged 30 years.
Examined 27 Oct. 1853.

Hereditary tendency.

Complains of cough and expectoration for the last two years, also pains in back and chest.

Night sweats, occasional attacks of severe diarrhoea.

No appetite - tongue furry.

There was great emaciation and evident deterioration of the blood, also nervous trembling of the extremities.

Pulse over 100, weak and irregular.

Slight evening rise of temperature.

White blood loaded with leucocytes.

Respiration quickened.

Expectoration mucous-purulent.

Chest - Physical Signs - Depression of left Sper

Intra-Clavicular regions.

Expiration very deficient, especially on the left side.

In palpation vocal fremitus increased over apex, and
Apex beat diffuse owing to probable hypertrophy of right side of heart.

On percussion, the note is improved on both sides over apex, almost dull over left.

On auscultation, breathing bronchial in character over same regions, slight cavernous over left infra-clavicular region. Vocal resonance increased.

Gurgles and rhales are occasioned heard, especially after coughing.

Treatment - the iodide of arsenic was given three times a day also a small dose of the phosphes of strychnia before meals to account of the nervous phenomena and loss of appetite.

Patient was seen once a week and the following notes show the progress of
The Case.
19th Nov. Feels altogether stronger. Tremblings are much less, appetite much improved. Tongue cleaner. No return of sneezings. Pulses steady. Better nights as cough is less troublesome - has gained one pound in receipt.

16th December. The improvement in the general condition of the patient is fully maintained. Has gained 3 pounds more in receipt.

14th Jan. 84. Condition much the same. Expectoration has diminished.

On auscultation the expectorations are of a clear character.

14 Feb. Has taken a fresh chill. All symptoms slightly aggravated. Cough much more troublesome. Now prescribed three minims
of liquor Arsen. after food— and Strychn. phosph. stopped—
25th Feb. Effect of Catarrh is passing off.
and from this date
the improvement continued
more or less steadily
up to the month of
May 1884. when the
patient was lost sight
of. During the course
of treatment he
maintained this weight,
and though the physical
signs remained removed
unchanged the same, yet
the improved manner
in which the nutritious
processes were carried
on was very satisfactory.
Only one attack of
Diarrhoea occurred during
the treatment.
It may be mentioned
that no elastic fibre
was found in the
Spirits.
James McC. aged 40 years
examined 29 Oct: 1883.
Hereditary tendency to phthisis
in the family.
Complains of having
had a winter cough for
some years with expectoration. He has no distinct
night sweats. Vomits to
bowels. Pulse fairly
strong but rather rapid.
Is very liable to attacks
of dry pleurisy, and
done years ago was
laid up for several
months from a severe
attack of pleurisy
with effusion.
Appetite poor, bowels
did fairly well.
Physical Examination.
On inspection the
effusion is noticed
to be rather deficient
on the left side.
Palpation reveals
nothing abnormal.
was slightly expansed
over the left apex.
Over the same area
the breathing is loud
in character and
expiration prolonged.
Occasionally a musi
culous noise is heard.
Pleural friction
to audible below
the right nipple.

Treatment - The
logeon Arsenieus was
given during three
months. Then stopped
for three weeks and
afterwards resumed.
This patient was seen
weekly up to the
month of February
1885, and though
he had one or two
relapses owing to
chills, he on the
whole gained strength.
The cough became
much less troublesome
in fact he nearly
lost it at times,
and the rales had.
Entirely disappeared when last examined. During the course of treatment he had three slight attacks of dry phenyce, but the temperature never rose above 100.5. The other symptoms of his case remained much the same.
William T., aged 28 years, Examined 26 April 1884. Hereditary tendency not traced. Patient is greatly emaciated and debilitated, so great that he has to be carried upstairs. He complains of pains in the chest and back. Cough, expectoration, frequent attacks of diarrhoea, severe night sweats, palpitation, and severe suffering from "fistula in ano." The disease commenced about four years ago after a chill, and the patient had been on the sea trip to Australia from which, however, he derived no benefit. The voice is rather husky, has had pleurisy, and some eighteen months ago, an attack of lipothymia. The tongue was furry...
No appetite.
Pulse very rapid, 105-115 and feeble, temperature subject to sudden rises, but not constantly high.
Respiration quickened and expectoration contains some elastic fiber.
Chest. Physical Examination.
Expansion of thorax very deficient on both sides.
Vocal fremitus increased especially on right upper half but apices clear on percussion and vocal resonance increased over same areas. Breathing bronchic on auscultation over right infra-clavicular region. It is almost continuous in character. Crepitations heard more or less over both lungs.
Right side of heart hypertrophied.
Urine shows a
distinct trace of
Albumen.

Treatment—Patient
was first put upon
the podish of Arsenie
which was afterward
changed to the liquor
Arachnicalis, and
during the ensuing
six months he improved
in general health.
Previousy he had been
taking the hypophosphite
and I allowed him
to continue their use,
on and off, at intervals.
He became stronger
and was able to take
gente walks of ½ of
a mile. The cough
expectoration and
night sweats less
and there was a
marked improvement
in the appetite, the
tongue becoming cleaner.
The expectations were
also slayer in quantity.
Towards the close
of the year the
Quantity of Albumen in the urine increased greatly, owing to the probable syphylis degeneration of the kidneys. And the became again weaker, though the chest symptoms were no worse, and there was no return of diarrhea. About this time he had two severe attacks of angina pectoris. 15 Feb. 1885 — Condition much the same though gradual loss of strength. Cough much less troublesome. Bowels regular. Appetite fair. But suffers a good deal from pleurisy. Ankle swells a little at night. No return of angina pectoris, but it is evident that the loss of albumen is beginning to tell strongly upon the system.
IV

Alfred W., age 35 years
examined October 1883.
Hereditary tendency on
Mother’s side, lost a brother
and two sisters of phthisis.
Complains of cough,
extpectoration and weakness.
The disease commenced
about ten years since
after an attack of
pleurisy. He has
been to Australia and
wintered at Algiers
and Corsica and
also been to the Engadine
with only temporary benefit.
He has steadily lost
flesh and strength, and
appetite has fallen off.
Has had several attacks
of pleurisy without
effusion.

Pulse rather quickened,
temperature ranging from
99.8° to 102°.
Occasional attacks of
diarrhoea. No night
Respiration quickened.
Effluviation Mucous-pulvis contains no lung tissue.
Thorax - Examination.
On inspection a marked sinking is noticed over the left upper and infra-clavicular areas. Upper half of left lung is dull on percussion, and resonance increased.
On auscultation breathing bronchial in character and Vincous Rales heard all over the left lung.
On the right side the breathing is of the 'pulvitate' type.

Treatment:
Liquor Arsenicalis m/7 ten die post taken gave the best result. The improvement was marked and continued within three weeks after commencing the treatment - the patient regaining...
strength and being able to take more exercise. The crepitations also became less moist. I had him weighed every month and there was a slow but steady increase in weight. He slept better and appetite improved. The temperature remained normal for weeks together, and pulse became stronger and steadier. When last seen in February 1855 the good results still maintained.
William R., aged 28 years -
Examined 16 October 1884.
No distinct family tendency.
Complains of winter cough and expectoration for several years -
slight hemoptysis three months ago. Also during the last few months there has been a loss of strength and flesh.
Perspiring at night - appetite poor, tongue furrowed.
R. Pulse 80 per, temperature normal.
Patient is a nervous subject.
Chest - Examination -
Inspection, palpation, and percussion reveal nothing abnormal -
Upon auscultation breathing is harsh in character over both apices. Inspiration slightly prolonged.
Treatment - The liguro
Arsenicalis in combination with a little iron, and a small dose of Stycb: Phos. before meals during the first few weeks. The liver was also acted on by a little Podophyllin when the treatment was commenced.

1 Jan 58: Cough and expectoration less, no return of haemoptysis. No further loss of strength, and appetite improved.

Other conditions much the same.
Jacob P., aged 39 years—examined 28th April 1884.
Hereditary tendency to phthisis—
Complains of cough, expectoration, severe night-sweats, and general wasting and debility since last September. He has also had repeated attacks of hemoptysis.
Pulse rapid and weak—
Temperature rises of an evening—
Chest—Examination—expansion is deficient—particularly on the right side—
On percussion not impaired over both spines—
On auscultation the breathing is bronchial in character over some areas—cavernous over right infra-clavicular.
region — Some mucous
riles and Crepitations
are detected more or less over both
lungs —

The Sputa Contain
Some Elastic fibre —

Treatment — The Liquor
Arseni: in Combination
with the Liqu: Ferris
perchlor: was given
for two months with
no good result; other
remedies were then
tried but all in
vain. For all the
symptoms gradually
became aggravated
and the patient
died on the 26th July
74 from Exanation
following a severe
Attack of Intoxication.
VII

William D., aged 27 years 20th August 1854. Examined phthisis is hereditary.
Complains of cough and expectoration and great general debility and discomfort—also much restlessness during the last few nights. The cough has been present for about six weeks.

The patient was found much emaciated and had a peculiar staring and anxious look. The pupils being much dilated and sluggish to light. Skin hot and burning. Tongue dry and coated. Pulse 115.

Temperature 103.1. Appears excited but answers questions gently rationally.

Sweats rather scanty and loaded with serous fluids have been
Costive but now loose.
Respiration quickened.
Expectoration prevalent.
Throat:
Expansion very imperfect.
Slight impairment of
Percussion note over
Upper lobe of lung on both sides.

Breathing jerky.
Expiration prolonged.
Moist Crepitations
were heard scattered
over both lungs.

On the following
morning 21st Aug.
Patient found in
Comatose state—loud
stertorous breathing
heard before entering
the room. Eyes open
Pupils dilated and
Insensible.

Cheyne-Stokes breathing
very marked.
Extremities apparently
paralysed.
Temperature 102°
Impossible to make
Patient Reawake.
more than a few drops
pulses very rapid and
frequency.
Cyanosis very marked
and backward curvature
of neck — 
progress Cold sweating
convulsion and vomiting
involuntary.

Treatment — Cold
applied to head

The hundredth of a
gram of the Lodged
of Arsenic was
administered every
24 hours up to eight
doses when the patient
slowly regained
consciousness and
was able to sit up
and converse at
intervals.

Pulses and temperature
remained much the
same, cough slight
screamy and expectoration
pupils still dilated
and sluggish —
was able to take such
nourishment as was
thought advisable. He however slowly became more prostrated though remaining conscious up to the time of his death which occurred on the morning of the 24th of August 1884.
Fanny C., aged 22 years
Examinm. 10 March 1884
Family history not known.
Complains of cough, slight expectoration, night sweats, and
Abortus of monthly period for the last seven months.
She was suffering from intense anemia
and great weakness
and nervous exhaustion,
having marked emaciation.
She has had slight
attacks of hemoptysis.
Pulse very irregular
and rapid 118, and
she suffers at times
from severe attacks
of palpitation.
Examination of chest:
Inspection and percussion
reveal nothing abnormal.
On auscultation the
breathing is found to be harsh over
both apices, more
particularly the right one, and expiration prolonged.

No expectorations were detected.

Treatment — The digital arsenicals in combination with the dip. Ferric perch. and a little phosphoric of sthennia before breakfast and dinner. The treatment was continued for six months without striking benefit. Improvement setting in nearly at once, and by the 14th July the menstral function had reappeared. The cough, expectoration and night sweats ceased, and on auscultation over the right apex the breathing sounds found to be of a more satisfactory character, though expiration still somewhat prolonged. No return of the hemoptysis.
during treatment—
The diabetic state also underwent a marked and steady improvement. The pulse also became regular and steady.
Strong—
IX

Ann C. aged 19 years
examined 27th Sep 1883.
Matter delicate, is an only child.
Complains of pains about chest, cough and expectoration.
About a year ago she had an attack of pneumonia, about a year since pleurisy. There are periodical attacks of chills and fever, and the monthly period is very scanty.

For the last few months there has been a steady loss of strength and flesh, and hectic of an evening. Night sweats coming on pulse 95 to 115 feeble and irregular.

Appetite capricious. Expectoration mucous - expectoration mucous contains no lung tissue.

Varies much in quantity.
Chest - Physical Examination. Inspection and palpation reveal nothing abnormal. On auscultation the breathing is harsh with expiration prolonged over both lungs, an occasional Crepitatio is heard. The same regions give a slightly impaired state when percussed.

Treatment - Lodum of Arsenie three times a day one hour after posset about 9/100 th.

The patient was seen weekly up to the 15th of May 1884 when she kept Eastbourne in a decided improved state of health. The Crepitations had disappeared, pulse steadier and the hectic much less marked. Menstruation became more regular - during the course
of treatment—occasional attacks of diarrhoea occurred which however yielded promptly to 20 grain doses of Bismuth subnitrate. These attacks towards the latter part became much less frequent—The expectation was only once tinged with blood, and there was one slight attack of dry pleurisy. The general nutrition of the body was much improved—

In the month of December 1884 I had occasion to see the patient's mother who reported very favourably as to her daughter's state at that time.
Alice D. aged 16 years
examined 17th March 1884
Family delicate on Chest
Complains of having had
pains about the chest and
back for the last three
or four months, with
cough and a little
expectoration at a
morning. The month
period is irregular
and very scanty.
Pulse fair.
Temperature normal.
No night sweats.
Appetite capricious.
Bowel regular.
Chest
Examination.
Inspection, palpation
and percussion
reveal nothing abnormal.
On auscultation the
respiratory murmur
is found to be hard
in character over
the apex, with
expiration prolonged.
No Crepitations.
Treatment - The drug Arsenicum in combination with Perilla was given with good results - the patient was seen about once a week up to the 24th July 1852 and steady progress was maintained. The Cough and expectoration ceasing entirely and the general health being much improved.
Elizabeth aged 23, examined 28 April 1884.

Family history not known.

Complaints of slight cough for last six months with cessation of the monthly period
and a general failing in health. Also slight night sweats, pulse fair though rapid, temperature normal, appetite capricious, bowels rather constipated. There is no expectoration but the patient has a decided anaemic look and is low spirited.

On examining the lungs the only symptom of incipient mischief is noticed over the upper lobe of the right lung where the breathing is harsh and inspiratory murmur.
slightly prolonged.

Treatment—

 Leigh: Arsen: with the Leigh: Perriand: was given for two months with marked improvement of all the symptoms except leaving enteral.
Alice St. aged 23 years.
Examined 11 Sept. 1854.
Hereditary tendency.
Complaints of cough
with expectoration streaked
with blood, slight
night sweats,
appetite very poor.
Pulse irritable.
Temperature normal.
These symptoms have
been developing during
the last six months.
Chest. Examination
expansion rather deficient
on the left side. Also
slight impairment
of percussion note
over left apex, and
vocal resonance slight
increased.
Breathing rather harsh
in character over both
apices, and a few
crepitations are occasionally
detected over left
infra-clavicular
region.
Treatment—

The lodick of arsenic in small doses after meals and a little phosphate of stramine twenty minutes before food — Under this treatment the patient regained her appetite and the symptoms of disease became much less marked — The expectoration became very slight and the blood entirely disappeared. The patient left Eastbourne at the end of three months —

In all the foregoing cases the dieting was strictly attended to —