

Lalol as an Antiseptic,
in Cases of Glands -
-intestinal Catarrh
by.

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June 1896

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1.
In this paper it is proposed to refer to Salol as an antiseptic in various gastro-intestinal disorders. Like many other antiseptics, Salol has its advantages and also its drawbacks, which will also be here set forth, as well as may be.

Antiseptics, most of them at least, whether given internally or applied externally, may sometimes, besides acting upon the poison which they are intended to combat, act also injuriously upon the system of the individual to whom they are administered.

Indeed, where the amount of toxic products is great, and the power to throw these off is but feeble, and the patient practically moribund, it might well be questioned whether the cure or the disease were the chief factor in bringing about a fatal issue.

2.

In practice, however, where we may reasonably hope to avert death from toxæmia the cautious use of suitable antiseptics may save life in many cases.

It is generally held by those who voyage in the tropics that all cases of diarrhoea occurring on board a ship, whether lying in, or for some time after leaving a foreign port, should be regarded with suspicion, as also should such symptoms as nausea and vomiting, colicky pains, and cramps.

This would be especially the case where there is, or has recently been, an epidemic of cholera or of typhoid fever.

The generally accepted theory is, nowadays, in cholera & typhoid that the bacteria of these diseases find their way into the intestines & there set up local symptoms (not invariably present in the

3. latter disease however.)

Then, the toxic vital products of the bacteria are sooner or later absorbed into the system, causing general symptoms of more or less gravity.

In some cases, however, the general symptoms are already so far advanced before the local symptoms are evident, that intestinal antisepsis is often too late to be of any avail.

Theoretically, when this can be carried out, the dangers of general sepsis would be greatly mitigated.

The following notes relate to a number of cases (about 25) of diarrhoea occurring in a steamship on the return voyage from Lessonsland, when lying for some days in the port of Sandjong Priok in Java a few miles from Batavia the Capital, early in 1894.

4.

Cholera was not actually known to be present in the neighbourhood, but certainly the nature of the surroundings would form a suitable home for diseases of this class, the country being low lying, flat, and swampy, and intersected by numerous canals which received all the sewage of the district. Malarial diseases were frequently here met with.

The cases of Diarrhoea observed were of varied character, some of these being almost choleraic.

The number of daily evacuations varied from 6 to 12, some 15 or even more.

The average duration of the Diarrhoea varied from two to four days.

Nearly half the cases were accompanied by vomiting, which either appeared simultaneously with the Diarrhoea, or a few hours before it.

5.

Case I

A few of these cases will be given
Fireman - aet 24 - Came to Surgery
at 2 p. m. He had been drinking
of water from tank near engine
room, and since noon had vio-
-lent abdominal pains and
frequent vomiting followed by
diarrhoea. The first stool was
nearly compact, the second
watery. Pulse full, strong 108.
Temperature 103.8. Anxious ex-
-pression of countenance.

Salol, gr XXV was given at once. &
patient was given 4 powders of
gr XV each to take. Through the
night there were 6 watery
evacuations, and patient com-
-plained of giddiness and tinnitus,
evidently caused by the Salol.

Next day only three evacuations
and patient felt much better.
gr XV Salol was given once in
6 hours, and by the third day
the patient felt practically
well.

6. Case II. An A. B., aet 44, come to surgery about 7 p. m. History of diarrhoea for four days, and, during this day past, watery evacuations nearly every hour and had twice vomited. Felt very weak. Sensation of giddiness in head, and felt as if ears stopped. Pulse full and weak 92. Salol gr \overline{XX} was given at once, followed by gr \overline{VII} every three hours. About 9 p. m. had a thin but not quite watery evacuation.

Next day patient felt much better. Had had only three evacuations during the night, & these were slightly more solid. Through that day the bowels only moved 4 times, and soon became normal.

Case III. Male - aet 35 - Storage passenger. Seen at 9 A. M. Had been on shore the day previous, and had eaten largely of fruits, and amongst other things a crab which he had found upon the shore and eaten raw, that evening. Soon after

7. this he felt pain in the bowels, and from 10 p.m. to midnight, vomited three or four times, character of vomit being watery with some few solid particles. From midnight to 9 a.m. had 6 copious watery stools. Felt very weak, but pulse full and strong about 110.

℞. Ricini ℥i c Tinct Opii ℥xv given at once. An hour later, when bowels had acted well, Salol gr XX was given followed by gr XV every 3 hours.

Seen again 6 p.m. no vomiting through the day, about 2 p.m. had a watery, almost colourless evacuation.

Patient had been growing weaker since morning, and could hardly rise from his berth. Had sensation of giddiness and feeling as though ears were stopped, but since 5 p.m. had felt much better. Skin bathed in perspiration. Temperature 102° pulse full strong 120.

Salol gr X given every 4 hours. Diet Diet restricted to tea, soup, all water

8 drunk to be previously boiled. Patient practically well the following morning.

Case IV Saloon Steward - aet 27 - asserted
that he vomited twice between 6 & 8 p.m. and that vomit was bilious in character and had also 3 watery evacuations.

Salol gr xxv was given followed by gr 7 every 3 hours. Bowels moved twice more during the night, and four times the following day.

Two large semi-solid stools the day after. 120 grains were taken in the 36 hours. Some trinitas was complained of. Patient gradually recovered health.

Case V

Female - aet 42 - Steerage
Came to Surgery at 10 A.M.
Stated that she had suffered from diarrhoea for about a week past. Had vomited four times the previous day. Feels general pains through bowels and weakness. Gave Salol gr xv followed by gr x every four hours. Recovered health by 2nd day.

9. Case VI. Female 21 yr - Steer age

Seen about 8 p.m. Had drunk some unboiled water when on shore in the afternoon, and shortly after had been seized with colicky pains, and had vomited constantly.

Shortly before being seen had a profuse watery stool. Patient of delicate constitution, and extremely hysterical. Pulse rapid and feeble 110 Temp 102.6 Salol gr XV administered followed by gr X doses every 4 hours.

Through the night there were three watery stools. No more vomiting. At 9 a.m. next day patient felt much better. Temp 100.2 pulse 88 Free perspiration

Salol gr X given every 6 hours.

Bowels only moved twice that day and stools were more compact.

Case VII

Fireman - act 32 - Had been feeling ill for 2 days. Bowels had been very irregular. Had gone ~~one~~ shore the day he was seen, and

10

had stayed there for some time. When seen (6 p. m.) hands were dry and cold, pulse thin, face dusky, temperature 98° . Owing to the depressed condition, only gr X of Salol was given with $\frac{3}{4}$ of brandy. Four powder of gr X each were given every 3 hours with $\frac{3}{4}$ brandy along with each.

Next morning at 9 p. m. Temperature normal. Two watery stools were passed during the night. By midday temperature 100° motion every hour. Chicken broth, arrowroot, and tea given in small quantities frequently. Salol gr XV every four hours alternately with brandy $\frac{3}{4}$. After midday two more motions were passed, compact and yellowish. By fourth day, patient felt almost well.

Case VIII Boy - aet 11 - Stomach.

Suffered from severe diarrhoea and vomiting. Commenced with initial dose of gr X of Salol.

11. In about 3 hours urine was passed rather dark, greenish in colour.

No more of the drug was given for six hours, by that time urine was again passed almost colourless this time. Two watery stools had been passed. Other 3 doses of gr V Salol were given at 4 hour intervals.

In the course of 12 hours the motions were five in number, the last two being compact and yellow. No further discoloration of the urine was noticed in two more observations made at intervals of 4 hours.

Salol, I found could be given, without exception, to men, women, and children in these cases of diarrhoea. Initial dose for adults ranged from gr X - XX, or even to gr XXV in some cases.

To older persons, and those of weak constitution, not more than gr XV was given.

The next two or three doses of

gr XV-X were given every 3 hours, or, in some cases gr X every 2 hours.

When diarrhoea, weakness, nausea, and abdominal pains had abated, Salol was given less frequently, every four, and then every six hours.

After treatment, the evacuations were fewer during the first 12 hours, and gradually, from being watery and white, they became more compact and yellow. Often, after this, an interval would take place of 12 to 24 hours, after which patient would have a compact and well coloured stool.

Nausea and vomiting soon ceased, as a rule.

The most satisfactory form of administration was the powder, given in some hot tea. Although insoluble in water, it was thus taken easily.

If, as rarely happened, the

13. first powder ~~was~~ vomited, another was given.

Patients were kept in bed, and covered warmly. If pain present, hot fomentations were applied, and hot tea given them to drink. This, when hot, was much better retained than when merely warm.

A small quantity of stimulant may be added, but as this is often vomited, it is better to give it only in cases where there is much prostration.

No disagreeable consequences attended the use of saiol, except, in some cases, giddiness, and buzzing in the ears, evidently due to the absorption of Salicylates.

In cases where I had the opportunity of examining the urine, carboloria was only found in two of these.

In only one case did I observe any other symptoms of Carbolic

14.

acid poisoning which is feared by some authorities, on the ground of carbolic acid being separated from salol in the intestines.

In the case of children the dose was proportionate to age, and the results were always satisfactory.

These cases may be considered as rapid improvements for choleraic diarrhoea, even if it does not develop into true cholera, generally lasts from 8 to 14 days, (Ziemssen.)

In the cases treated, if diarrhoea had not ceased in two days, it was generally found that the prescribed diet had not been followed. Besides attacking the bacteria and their products, it is also necessary to prevent any irritation whatever of the intestines.

Opium was never required. In one case where there were

Acute abdominal pain and persistent vomiting, a hypodermic injection of morphia was given, which was repeated in four hours' time.

Emetics were only administered when it was clear, from symptoms of acute dyspepsia being present, as nausea, pain and oppression at pit of stomach soon after a heavy meal, especially of very stult or indigestible food, that they were indicated.

Patients who only complained of nausea and vomiting got large quantities of hot tea to drink, with a little lemon juice, when it could be obtained.

Aperients were used when indicated. It would appear that success in these cases was largely due to the prompt administration of the Salol.

A few other cases treated by Salol, occurring in private practice will

16 now be taken up briefly.

Case IX

Phthisical Diarrhoea.

Female - married - aet 55.

Had influenza about a year before present illness. Since then has had cough and spit. There was slight fibroid condition in both lungs, but no marked consolidation in either.

The cough and spit was more referable to the laryngitis.

Throat much inflamed. ^{Granular}. Irritable hacking cough.

Diarrhoea for about two months, commencing shortly after the laryngeal symptoms. Varied from 2 to 10 or 15, or even 2 motions in the 24 hours.

Diarrhoea came on at irregular periods at first, latterly became more constant, nearly every day.

Motions thin and watery, very offensive, much faeces. Colicky pains frequently present.

Night sweating present and emaciation great.

17. Calcechu and other astringents were used with, but little benefit.

The following powder was prescribed

℞ Salol ^{आप्त}
Pulv Doveri one table spoon

three daily. Considerable improve-
-ment in general condition of bowels.
Pain and diarrhoea greatly reduced.
About one motion in the day.

Offensiveness almost removed now.
Patient had previously been con-
-fined to bed for a month or so,
for about a week the patient
was able to get about.

After this the diarrhoea
became a little worse, and
intestinal symptoms more
marked, but not so bad as
before.

The laryngitis and lung
symptoms became greater.

Consolidation and breaking down
ensued, and patient died about
8 months after lung symptoms
had become fully developed.

18. Two cases of Typhoid Fever treated by Salol.

Case X Male - aet 20 - Case progressed very favourably for two weeks - requiring but little in the way of positive medication. About the 15th day from the commencement of the illness, abdomen became very tympanitic; tenderness in right iliac region increased, and became diffused over a large area. The evacuations passed within the next 24 hours were ten in number, of dark brown colour and offensive odour, the first two slightly streaked with blood. Tongue shrivelled, dry, brown, and fissured transversely; teeth coated with sordes; slight recurrences of epistaxis; some delirium.

From these symptoms it may be concluded that great ulceration of Peyer's patches was present.

Pulse rapid and feeble;

19. Temperature at noon 103° at
4 p.m. 103.8 at 8 p.m. 104.2

Salol gr \bar{X} was given with gr i of
opium. This was administered every
4 hours

From 16th to 17th day motions
only 6, less offensive, more
yellow in colour; no further
traces of haemorrhage; pulse
more regular; temperature:
12 midnight 103.4 ; 4 a.m. 102 ; 8 a.m.
 102.4 ; 12 noon 102.8 ; 4 p.m. 101.8 ;
8 p.m. 102°

From 17th to 18th day:
Stools only 4 in number, thin
yellowish; temperature ranging
between 101° & 102°

Patient gradually im-
proved, stools fewer in number,
more regular, & less offensive.

The case after this took a normal
course.

Case XI.

Female - aet 22 - Ill for
8 days before medical aid was

20

Sought, but had not been confined to bed. Had much diarrhoea during the three days previous.

The day she ~~was~~ seen ten stools had been passed. These were of the typical pea-soup character. A few rose spots were observed on chest and abdomen.

Tongue coated with white fur; pulse full soft, 120; temperature (8 p.m.) 102.5°

Slight tympanites, and some pain over iliac region.

Pain was controlled by small doses of opium, and Salol gr X given every 4 hours for the first day.

On the following day stools eight in number. Tympanites and pain almost nil. Salol gr X was then given thrice daily. Case was uneventful and recovery perfect though very gradual.

B. M. J. Moncorvo recommends the use of Salol in the malarial diarrhoea of

1890

21. Children. It may also have its uses in diarrhoea arising from improper nourishment, defective hygienic surroundings &c. The following cases may be in some degree illustrative of this.

Case XII.

Male infant - aet 14 months.
Seen in June 1895, during a period of very high temperature. The child was still on the breast, not being entirely weaned, but getting also what is usually termed "the run of the house", i.e. a very mixed dietary for an infant.

History of having eaten some cheese the day previous. Pain and diarrhoea started during the night. The mother ^{stated} that the bowels had been loose all night.

When seen, child was pale and collapsed, breathing faint, mouth open, and eyelids half-closed; appearance of vomiting over clothes; pulse small,

22.

wiry and weak, impossible to be counted, and hardly even perceptible to the touch.

Motions passed in bed, every quarter of an hour nearly. Vomiting stopped, but child very weak; skin and extremities cold; evidently in critical condition.

Half a teaspoonful of brandy was given every 2 hours, 1 grain of Salol (powder) every half-hour for first three doses, then every 2 hours.

Injection of Starch with Acetate of lead was also given.

Case first seen at 9 a. m.
Seen again at 3 p. m. Diarrhoea almost ceased, but almost pulseless condition; unable to retain any nourishment, and vomiting anything taken, but does not vomit at other times. Child died at 10 p. m.

In such cases, in a condition of collapse when first seen, Salol seems to have comparatively little effect, especially

23

when there is much vomiting.
Stimulants are chiefly to be de-
-pended upon in those cases.

Case XIII

Child - male - aet 2 1/2 years
Seen also during warm weather.
Had some slight diarrhoea for
two days before being seen,
and is stated to have vomited
occasionally during that time.
Temperature 102.6 when seen.
Gave Salol grⁱⁱⁱ every four
hours. When seen next day
in forenoon, temperature 101.4.
Had passed a better night. Early
that morning had one large
nearly compact stool. Tem-
-perature gradually fell to
normal and patient was
well by 3rd day.

Case XIV

Infant - female - aet 1 year.
The mother stated that child
was suffering from "brices."
This is a popular term, rather

24 loosely employed, but which may usually be taken as implying a condition which is mostly met with in children, who are partly bottle-fed and also getting "the run of the house." It is characterised by frequent colicky pains, irregular action of bowels, with greenish, acid, and "choppy" stools. Eruption, of papular character, frequently met with around anus.

This case showed the above symptoms, and motions were very frequent and offensive. ʒi of Oleum Ricini was given and after bowels were again moved the following powders were given

R

Salol

āā gr ii

Bismuthi Salicylat

Sodii Bicarb gr ~~iv~~

One every 4 hours

25

Rigid dietary of milk was insisted upon. All milk was boiled before use, and bottle and teat well scalded.

Under these precautions, patient made a good recovery.

In the diarrhoea of children, improper feeding and unhygienic surroundings are often the exciting cause, and the habit amongst many mothers of keeping the child too long to the breast may be regarded as a predisposing cause.

Salol is not decomposed in the stomach, but is changed immediately upon entering the bowel, and is said to appear in the urine as salicylic acid (Whittle)

In cases of gastric catarrh, salol has the advantage over salicylic acid as an antiseptic, in

26

that it does not tend to ag-
-gravate the gastric symptoms,
and thus can be used to more
advantage than the other,
in cases where there is
vomiting.

Most authorities are
agreed that salol is de-
-composed throughout the
whole length of the intes-
-tal tract, and although
it is said that omnis pepsis
cannot reach the larger
bowel, yet it may be that
even there Salol would have
its effect upon the charact-
of the stools, and the inter-
-tinal mucous membrane,
and thus assisting recovery from
the previous unhealthy con-
-dition.

(*)
of the
Practi-
-tioner
July &
Aug. 1890

(*) Hessellbach remarks
that "Salol is a drug inter-
-ceded to take the place of
"Quinine and Salicylic acid,

27. " which at first was recom-
"- mended as free from noxious
" principles. Its dangers
and drawbacks remain
to be discovered by clinical
" observation.

" It is the phenyllic ether
" of salicylic acid, and its
" composition may be stated
" as containing 40 per cent
" of phenol, and 60 per cent
" of salicylic acid. It is eli-
"- minated somewhat slowly
" ~~from~~ the body, since, for days
" after its ingestion, the green
" or even blackish tint charac-
" - teristic of carbouluria is
" observable.

" The result is, that
" when Salol is given continu-
"- ously, its components are
" apt to accumulate and give
" to medicinal, and even
" toxic effects of an enduring
" character.

28. " The maximum dose of phenol
" in Germany is $1\frac{1}{2}$ grains at a
" time, or $7\frac{1}{2}$ grains per diem.
" In Austria it is given $\frac{3}{4}$ gr at a
" time or $2\frac{1}{2}$ grains per diem."
(Since then ¹⁸⁹⁰ I understand the
maximum dose in Germany
to have been increased) A.

Many authorities are greatly
divided in opinion as to the
untoward effects produced
by Salol. Some state that
large doses can be given with-
out unpleasant results, others
speak of decided symptoms of
Carbolic Acid poisoning, after
its use in large doses.

⊗
Materia
Medica and
Therapeutics
1888

⊗ Whittle says that:
" Salol in large doses causes the
" urine to become black, and it
" may produce symptoms of
" Carbolic and Salicylic acid
" poisoning. Nevertheless, it is
" very much safer than propo-
" -ionate amounts of these acids,

29. " and has been given in 15 to 30
" grain doses in fevers without ill
" effects. After such a dose there
" may be noticed in the tempera-
" -ture a drop of 5° "

Hesselback comes
to the conclusion that:
(A) "The large proportion of
phenol contained in Salol renders
its ~~topic~~ a substance that its
unrestricted therapeutic use is
fraught with danger.

(B) "That in renal disease
Salol is contra-indicated
Hesselback observed
post-mortem in a fatal case of
Salol poisoning: "Kidneys anaemic,
finely granular, cortex pale
yellow and much thinned, glo-
-meruli inconspicuous and few.
"The cortex was traversed in the
direction of the medulla by
yellowish opaque streaks of
various lengths of fatty dege-
-neration."

30.

Phenol poisoning is said to occur more readily if renal epithelium is in a diseased condition, than it would, if the kidneys were sound. Want of power in the matter of excretory function probably concludes directly to carbolic acid poisoning.

Kuster observes that phenol, and therefore Salol, is especially toxic to anaemic or febrile patients of the female sex.

Possibly, in the case mentioned by Heffelbach, there may have been some difficulty in the elimination of the Salol compounds, leading to an excessive accumulation of phenol in the system, or deficient transformation of phenol into innocuous phenyl-ether-sulphuric acid.

In one case seen by me, a history of granular kidney afterwards elicited. The initial dose of Salol, though small (gr̄x)

31. produced restlessness and irregular pulse, pupils were dilated and urine became very dark, so that the use of the drug had to be stopped.

The case mentioned by Hesselbach is evidently an isolated one. The action of Salol upon the kidneys must be judged for the most part theoretically.

In my opinion it would seem that, (as almost all poisons when given in large doses, will, upon reaching the kidneys, produce untoward effects of some nature or other, and influence, in some degree, the excretion and the character of the urine,) that Salol, when given with due need not, (given, healthy kidneys to start with) produce any of the disastrous effects mentioned, which are caused by deficiency of excretory power and accumulation in the system.

32. As a rule in the great majority of cases, if the dose be carefully regulated according to need, of course, no change in the character of the urine need be visible at all, or only to a slight extent in a few cases.

“Taking the case of alcohol, for instance, Whittle says:
“When given in small doses, it appears certain that a fair quantity, (it is not clear how much), disappears in the system, and is used up as food like sugar, producing vital energy and heat.”

If this might be applied analogously to phenol, (for alcohol, when used in large doses, and for a long period, has its own effects upon the kidneys) it is not improbable that salol (and therefore, also phenol) given in such doses as the case (e.g. diarrhoea) may require, is fully called into use in the destruction

33. of the bacteria and their products, forming other compounds, which are probably rapidly excreted from the body by the various channels.

B. That any quantity of salol, (and therefore of phenol,) in excess of what is actually called into action as an antiseptic, will, like alcohol, make its appearance in the urine.

Y. That, possibly, the amount of salol required to be given, before the appearance of carboloria, (making due allowance for what quantity would be absorbed in health without showing change in urine) might give an approximate index as to the quantity of toxic products in the intestines.

S. That in cases of *Septis* larger doses can be given, - as with quinine in fevers.

Case VIII page 10 of thesis, illustrates relation between dose + appearance of
1 Carboloria.

34. In this paper, I have only briefly mentioned the use of Salol as an antiseptic in gastro-intestinal cases. I have not made any mention of its antipyretic and analgaesic effects although these are well spoken of by some.

Salol, further is not the only antiseptic that can be used in the treatment of diarrhoea. Calomel, Bismuth &c. are also useful, and Castor Oil may be occasionally given with advantage.

I cannot pretend to say that Salol has any particular effect in shortening the course of the ~~cases~~ of Typhoid Fever, or of diarrhoea arising from any other specific cause of intestinal catarrh.

It seems however to have a specific influence in disinfecting the contents of

35- the bowels, and thus tends to bring the mucous membrane into a more healthy condition, and so make the conditions of recovery more favourable.

The antipyretic action of Salol may also be of benefit in some cases of typhoid.

Salol may be also given with astringents; with opium when there is pain and tympanites, as in typhoid. Also turpentine some times given.

The general tendency is, nowadays, to attribute cases of gastro-intestinal catarrh to the irritation of bacterial products. This may serve as some excuse for my having introduced the subject of Intestinal Antiseptics.

It would seem to me that the antiseptic treatment of such cases, is a much more scientific method of dealing

36. with them, than by the use of astringents, which can have no specific action upon the toxic disturbances, or the too often indiscriminate use of Opiates
In many cases, it is also often well to commence with an aperient, where the presence of irritating ingesta is suspected.

~ " ~