"Joint affections in Scarlet Fever"

Thesis presented by

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for the degree of M.D.
"Joint affections in Scarlet Fever."

In the preparation of the following remarks I have consulted the books mentioned below and have had under treatment personally the cases of scarlatinal arthritis of all forms which have occurred in 2,614 cases of Scarlet Fever in the Birmingham City Hospitals in 1895:

1. Paget's "Principles & Practice of Medicine" 
2. Pepper's "Medicine" 
3. J. H. Taylor's "Practice of Medicine" 
4. Symes Taylor's 
5. Ashby & Wright's "Diseases of Children" 
6. Donkin's "Diseases of Children" 
7. R. H. Smith's 
8. Goodhart's 
9. Collie "On Fevers" 
10. Moore's "Fevers" 
11. Bartell's "Rheumatism" 
In the first place I will give a synopsis of the literature on the subject, and I will follow this with notes of cases of simple scarlatinal arthritis, and cases of true rheumatism complicating scarlet fever.

I am unable to give notes of any cases of suppurative joint lesions since in the cases for that year no single case occurred a fact which emphasizes the rarity of the condition.

As for the tubercular joint lesion, that very seldom comes under the observation of the medical officers in hospital.

The literature on the subject is scanty and there seems to be a good deal of difference of opinion as to the real nature of these joint affections.

Zagge mentions rheumatism as a complication of scarlet fever and says that it is frequently associated with pericarditis and endocarditis.

Pepper says "It affects chiefly the larger
joints, wrist, elbow, ankle, and knee. It is mild and usually short in duration but may
unlike true rheumatism, suppurate and leave permanent deformity. The joint affection is
probably in these cases to be referred to a mild septic or pyogenic infection.

Seymour Taylor says: "There is an acute general
arthritis often as soon as the rash
indistinguishable from rheumatism. It may
be a synovitis due to the direct action of the
septic organism of the primary disease. It is
generally mild."

Ashby Wright: "Synovitis, or rheumatism; -
The joints are apt to become swollen and
tender at the end of the first or beginning
of the second week, these most frequently
affected are the wrists and small joints of
the hand, whilst sometimes the synovial
sheaths of the tendons at the back and in
the palms of the hands are attacked."
The knees, ankles, poles of feet, elbows and joints of the cervical vertebrae may be affected. Movement of the affected joints causes pain and they are usually swollen, red or tender. The affection is rarely severe being fugitive and seldom returning to the same joint. The knee joints sometimes remain swollen for some weeks from effusion into the joints. The cases complicated with pyovitis are usually severe though exceptions occur. Peri-endocarditis occur much less frequently than in the ordinary form of rheumatism.

Pyovitis sometimes occurs in association with nephritis during the second week. Attacks of true rheumatism are apt to occur during convalescence, but such are more common in young adults than in children; these attacks differ in no particular from ordinary rheumatism, the heart being frequently involved.

An attack of scarlet fever during convalescence from rheumatism not infrequently causes a relapse. Pyaemia or suppuration in the joints occasionally occurs; any joint may be
affected, such cases are mostly fatal though not invariably so."

Donkin in Disease of Children: "There is a pain of sweating and heart mischief and there is a smaller tendency to arthritic metastasis. This makes him think that the term scarlatinal rheumatism is misleading. There is occasionally true articular rheumatism in convalescence."

Justice Smith: "Scarlatinal rheumatism occurs in the second or third week. It is doubtful still if it is a true rheumatism of septicemic arthritis or a further manifestation of the scarlet fever poison which may settle in the joint as well as in the kidneys. It ends in suppuration occasionally."

Goodhart in Disease of Children: "A common begsula sometimes during the eruptive stage but more commonly towards end of second week. Quite like acute rheumatism and shows itself sometimes by pain only and sometimes by swelling. Endocarditis is fairly common. The relation of scarlatinal rheumatism to acute rheumatism is still uncertain. Henoch discards scarlatinal
rheumatism and suggests scarlatinal synovitis.

In several cases Goodhart has seen a strong family history of acute rheumatism. Goodhart thinks it is true rheumatism developed because the system is deteriorated by the scarlet fever poison. Ashby and Henoch think they are septic and not rheumatic because it is a complication of the prolonged febrile stage of scarlet fever. Goodhart says that the attack is usually at the end of the first week. Relief is very rare because there are few joints affected and endocarditis is rare.

Bollie "on Fever" "Rheumatism is generally mild and confined mostly to smaller joints. Occasionally and very rarely it is severe and accompanied by endocarditis, which result in permanent heart mischief. Mose "Fever" "Inflammation of the synovial membranes of joints is met with just when desquamation is beginning, but may occur at any other period. These inflammations constitute what is known as scarlatinal rheumatism. The condition
presents itself either as a more or less intense synovitis acuta with serous effusion or as a suppurative arthritis ending in osteitis, periostitis, caries and necrosis or pyaemia and death. Scarlational rheumatism may also be accompanied by peri endocarditis."

Garrod in "Rheumatism" quotes Headle as saying, "in many cases the articular lesions bear so strong a resemblance to those of true rheumatism that it is difficult to suppose that they are of any other nature."


"Troussseau designates it scarlational rheumatism. The general belief is that it is true rheumatism due to the rheumatic diathesis in the patient. One form is decidedly febrile. The fever is severe, the throat is well marked. The true scarlet fever temperature falls during the first week. In scarlal rheumatism with complicating ear and throat it falls during the second or third week. Synovitis comes in these cases in which the fever is severe, and prolonged by ulceration of tonsils and faucets. The joints affected are the wrists, fingers
knees and ankles. Seven out of twenty
had soft spots - all functional.
That synovitis differs from rheumatism
may be seen by these points:-
1. More common in some epidemics and
especially in those cases prolonged by
throat
2. Fewer joints than in acute rheumatism.
Attacks are fugitive and rarely recur.
3. Pericarditis and endocarditis are rare.
Pyæmâ is just a further stage where
phlebitis and suppuration of the joint
occurs. This is uncommon; I have seen
three cases,
True subacute or acute rheumatism
during convalescence does occur."

Chendle, Brit Med Jour 1876, Vol. 1, p. 67.:
"an arthritis which can in no way be
distinguished from rheumatic arthritis.
It is often accompanied by endocarditis or
pericarditis, and sometimes by chorea, by
nodule and by erythema nodosum.
The concurrence of the other rheumatic
phenomena in a number of cases and the
Special liability in childhood of girls as
in articular rheumatisms are strongly in
favour of the affection being rheumatic, rather
than septic in nature. It seems clear either
that genuine acute rheumatism does occur in
the course of scarlet fever or else that the
subcutaneous virus itself occasionally produces
inflammation of articular tissues and a
nervous chronic disturbance analogous to and
indistinguishable from that set up by the
rheumatic state itself.


Here we have a description of nine cases of
suppurative joint disease after scarlet fever.
As regards onset they occurred usually in
the third or fourth week. The throat condition
in the majority of cases was very bad;
swelling and inflammation having taken place,
and in several there was both otorrhoea
and rhinorrhoea. The joints affected
included hip, knee, ankle, elbow & wrist,
but only once was the hand affected.
Joint lesions in scarlet fever may be divided into:

1. Simple scarlatinal arthritis
2. True rheumatism
3. Suppurative joint lesions — pyaemic

Of the 2614 cases of scarlet fever in the hospitals in 1896 we had only cases of scarlatinal arthritis and true rheumatism. Joint cases numbered in all 63 out of 2614, 46 females and 17 males.

We had 1363 female and 1251 male patients so that a much larger proportion of female cases were attacked than male.

According to Parrot in adult life males and females suffer equally from true rheumatism.

Samuel West says 619 males, 518 females, Senator 670, 692.

These statistics give very little difference. According to Parrot again in childhood girls appear to suffer from true rheumatism in greater numbers than boys. Even if this is so the proportion of females to males in scarlatinal joints is far greater than in acute rheumatism since
Here we have 72% of the cases female and only 28% male, while the numbers in the scarlet fever cases were only 100 males to 109 females.

Of the 63 cases of joint disease 15 were I think true rheumatism and the remaining 48 were simple scarlatinal arthritis.

Next is a table containing a synopsis of the notes of the 48 cases of simple arthritis.
<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Date of Sickness</th>
<th>Date of Joint</th>
<th>Joints Affected</th>
<th>Weeks</th>
<th>Cardiac</th>
<th>Throat</th>
<th>Uterus</th>
<th>Rhinorrhea</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. B.</td>
<td>15</td>
<td>F</td>
<td>95 Jan 6</td>
<td>Jan 10</td>
<td>Wrist with effusion</td>
<td>1st</td>
<td>Bad</td>
<td>Bad</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D. B.</td>
<td>5</td>
<td>F</td>
<td>March 13</td>
<td>March 26</td>
<td>Fingers</td>
<td>2nd</td>
<td>Normal</td>
<td>Mildly affixed</td>
<td>Double</td>
<td>Present</td>
</tr>
<tr>
<td>E. H.</td>
<td>9</td>
<td>F</td>
<td>March 20</td>
<td>March 27</td>
<td>Shoulders</td>
<td>2nd</td>
<td>Normal</td>
<td>Well</td>
<td>-</td>
<td>Present</td>
</tr>
<tr>
<td>E. G.</td>
<td>16</td>
<td>F</td>
<td>April 18</td>
<td>April 23</td>
<td>Wrist &amp; Shoulder</td>
<td>1st</td>
<td>Bad</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E. W.</td>
<td>41</td>
<td>F</td>
<td>April 27</td>
<td>April 28</td>
<td>Wrist &amp; Knees</td>
<td>1st</td>
<td>Systemic functional</td>
<td>Bad</td>
<td>Double</td>
<td>Present</td>
</tr>
<tr>
<td>E. Y.</td>
<td>15</td>
<td>F</td>
<td>May 1</td>
<td>May 3</td>
<td>Wrist &amp; Shoulder</td>
<td>1st</td>
<td>Normal</td>
<td>Bad</td>
<td>Double</td>
<td>-</td>
</tr>
<tr>
<td>E. A.</td>
<td>5</td>
<td>F</td>
<td>June 26</td>
<td>July 1</td>
<td>Knees with fluid effusion</td>
<td>1st</td>
<td>Normal</td>
<td>Well</td>
<td>Mucous of tonsils</td>
<td>Double</td>
</tr>
<tr>
<td>F. S.</td>
<td>5</td>
<td>F</td>
<td>June 28</td>
<td>July 13</td>
<td>Wrist</td>
<td>3/2</td>
<td>Normal</td>
<td>Dry &amp; foul.</td>
<td>Double</td>
<td>-</td>
</tr>
<tr>
<td>P. P.</td>
<td>33</td>
<td>M</td>
<td>July 1</td>
<td>July 16</td>
<td>Wrist &amp; Ankle</td>
<td>2nd</td>
<td>Normal</td>
<td>Bad</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>A. G.</td>
<td>12</td>
<td>M</td>
<td>July 11</td>
<td>July 15</td>
<td>Wrist &amp; Ankle</td>
<td>1st</td>
<td>Normal</td>
<td>Bad</td>
<td>Double</td>
<td>Present</td>
</tr>
<tr>
<td>H. H.</td>
<td>12</td>
<td>M</td>
<td>July 12</td>
<td>July 16</td>
<td>Wrist</td>
<td>1st</td>
<td>Functional</td>
<td>Mucous</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>J. H.</td>
<td>8</td>
<td>M</td>
<td>July 19</td>
<td>July 21</td>
<td>Left Wrist</td>
<td>1st</td>
<td>Normal</td>
<td>Bad</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Name</td>
<td>Age</td>
<td>Sex</td>
<td>Date of Baptism</td>
<td>Date of Joint</td>
<td>Joints affected</td>
<td>West</td>
<td>Cardiac</td>
<td>Throat</td>
<td>Otorrhoea</td>
<td>Rhinorrhoea</td>
</tr>
<tr>
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<td>-------------</td>
</tr>
<tr>
<td>J. H.</td>
<td>10</td>
<td>M.</td>
<td>July 20th</td>
<td>July 25th</td>
<td>Wrist, ankle &amp; Knee.</td>
<td>1st</td>
<td>normal</td>
<td>Right</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>H. B.</td>
<td>13</td>
<td>F.</td>
<td>July 24th</td>
<td>Aug 14th</td>
<td>Wrist &amp; Ankle.</td>
<td>3rd</td>
<td>Functional Dysthestic Man.</td>
<td>Double</td>
<td>Present</td>
<td>—</td>
</tr>
<tr>
<td>J. E.</td>
<td>6</td>
<td>F.</td>
<td>August 8th</td>
<td>Aug 12th</td>
<td>Wrist.</td>
<td>1st</td>
<td>normal</td>
<td>Bad</td>
<td>Double</td>
<td>Present</td>
</tr>
<tr>
<td>H. A.</td>
<td>42</td>
<td>F.</td>
<td>Sept 2nd</td>
<td>Sept 3rd</td>
<td>Wrist &amp; Knee</td>
<td>1st</td>
<td>normal</td>
<td>Moderately foul</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>K. D.</td>
<td>53</td>
<td>F.</td>
<td>Sept 6th</td>
<td>Sept 7th</td>
<td>Hands &amp; Knee.</td>
<td>1st</td>
<td>normal</td>
<td>Foul</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>H. B.</td>
<td>7</td>
<td>M.</td>
<td>Sept 24th</td>
<td>Oct 1st</td>
<td>Wrist.</td>
<td>2nd</td>
<td>normal</td>
<td>Foul</td>
<td>Double</td>
<td>—</td>
</tr>
<tr>
<td>B. H.</td>
<td>16</td>
<td>F.</td>
<td>Oct 3rd</td>
<td>Oct 8th</td>
<td>Wrist &amp; Knee.</td>
<td>1st</td>
<td>normal</td>
<td>Foul</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>J. A.</td>
<td>4</td>
<td>F.</td>
<td>Oct 5th</td>
<td>Oct 8th</td>
<td>Hands, wrists.</td>
<td>1st</td>
<td>normal</td>
<td>Moderately Affected</td>
<td>Double</td>
<td>—</td>
</tr>
</tbody>
</table>
Next I will give short notes of a typical case of simple scarlatinal arthritis with temperature chart and to compare with it I will give what we find to be a fairly typical scarlet fever temperature chart.

A. S. T. 12 years. Female.

Date of first Oct 11th. Sputum 12th. Admission 12th.
On admission pulse was rather typical. Throat much injected and foul with adherent mucus, with a fairly high temperature.
On Oct 15th complained of pain in fingers, wrists, knees & elbows. The wrists were somewhat swollen but no swelling could be seen about the other joints. Movement caused pretty severe pain. The joints were wrapped in cotton wool & she had salicylate of soda 8 hourly. Bood prophylaxis invigoration. Blowing.
Oct 16th Paroxysm of arthritis and slept well.
17th Pain still present.
18th Paroxysm gone. Salicylate stopped. Pain in ear (right) suggested otitis - but no otoscopy.
Oct 20th Double otoscopy. Mott alluminium.
No blood in urine. No recurrence of pain in joints. And patient made a
good recovery. On discharge the heart sounds were normal.

In the 48 cases noted there are 34 females and 14 males. These joint affections, I think, are quite separate from true rheumatism. In every one of the cases the throat was markedly affected, there being in some ulceration of the tonsils and of the faucial region. In one case indeed the anterior pillar of the fauces on one side sloughed leaving a circular hole.

The female sex seemed to be preferred since
70% of the cases were in females while there was only a slight difference in the number of males and females admitted with scarlet fever viz. 100 males to 109 females. As for age it varied from 5 to 67 years, while the majority of cases occurred between 5 and 20 years.

As for time of occurrence of joint pains, the majority of writers quote their cases as occurring in the second or third week. In the above set of cases they occurred during all the first three weeks in the following proportion. In 1st week 76%, 2nd 17%, 3rd 7%.

So that the bulk of the cases occurred during the first week of the illness. As a rule, the pain started just as the rash began to fade.

As to joints - we had all the joints of the limbs affected but the majority of cases were affected only as to elbows, wrists, knees or phalangeal joints.

As regards the condition of the heart between 30% and 40% showed systolic murmurs.
These were functional and in all cases cleared up before discharge. It is our custom to examine all hearts on admission and we find that quite a large number of cases have such murmurs that is in ordinary acute scarlet fever cases.

In none of the above cases could any organic disease of the heart be detected.

Let us return to the state of the throat: all the above 45 cases had dirty septic throats with or many instances ulceration. In one of the cases the throat was not bad on admission but in the third week it took on a septic action and a few days later we had joint pains with delirium.

Ashby found that in his case the throat affection was severe and he considered the joint affection septicemic in character. Seymour Taylor says that there is a frequent connection between the throat affection and the 'pneumonia.'

Richard again in the Brit Med Journ 1896 vol 7 says that he thinks that the pains are either truly rheumatic in origin or that
the scarlet fever virus affects the joints specially.
I think it quite as probable that the scarlet fever poison should affect the joint and set up a synovitis as that the gonococcus should be able to set up a synovitis. Tague says that we can have joints affected in gonorrhea as early as the fourth day after infection of the urethra so it is not quite possible that the scarlet fever organism may be able to attack joints two, three or four days after the onset of the fever.
In the case I have just mentioned in which there was infection of the throat in the third week we have I think a case of fresh infection with a stronger scarlet fever poison. The patient has probably been rendered immune only to a milder scarlet fever organism. The organism seems to have attacked the throat while the patient was well on with pharyngitis and at the same time the organism may be circulating in the blood — may thus set up these joint affections.
It seems as if in hospital at least, patients get fresh doses of the poison. They are constantly in an atmosphere soaked with the scarlet fever poison. They are admitted with scarlet fever, desquamate in the second week, in the third week the nose often starts to discharge possibly due to the action of the organism on the nasal mucous membrane, or there may be nephritis, or otitis media, and it seems to me that this fresh start is probably due to an organism of a stronger growth which the patient has got from another in the vicinity, he having been already rendered immune to the milder forms. Such infection is possibly carried not so often by the scales of desquamation as by the pus from other cases, from rhinitis, and from the wiselows which are so common during convalescence from scarlet.

As regards treatment of the joint fever, the joints were wrapped in cotton wool and when there was a temperature with pain, severe salicylate of soda was given. With slight pain no salicylate
was given, and they cleared up as a rule in two or three days.

Only in a few cases was there much effusion and this cleared up in from two to three weeks.

The views as to the nature of these joint affections in scarlet fever thus are:

1. That it is true rheumatism.
2. " " a septicemic affection - which I take to be a coecal action on the joint.
3. That it is due to the action of the scarlet fever virus on the joint.

Against true rheumatism we have the statements made by Ashby:

10. "more common in some epidemics and especially in those cases prolonged by throat." This I am able to uphold from my own cases. In the scarlet fever prevalent in Birmingham in the first six months of the year we had only eight cases of arthritis while in the second six months we had forty cases. In the second six months we had a half more patients but this does not
seem sufficient to account for the great increase in numbers.

sh, "Fewer joints than in acute rheumatism; attacks are fugitive and rarely occur."
This again I can bear out. In many of the above cases only the fingers, wrists were affected or only wrists and elbows. Very seldom was there any metastasis and in no case was there recurrence.
In almost every case the affection was bilateral and the two sides were affected synchronously.
4) "Pericarditis and endocarditis are rare."
Out of the above 45 cases I could find no true organic lesion of the heart. There were occasionally functional sounds which we find fairly often in acute simple scarlet fever cases.

As for the septicaemic theory:

If it is Ashby's contention that the cocci and their products enter the blood in the region of the throat, where there is often an ulcerated surface, I have found that the joint pains are often present within twenty-four hours after the throat has been affected at all. At the same time
I think that it is as probable that
the joint affection in gonorrhea is
septic as that that in scarlet fever is.
The affection is usually so mild
that no fatal case occurs, and we are
unable as yet to investigate the joints
thoroughly. In many cases there is no
increase in temperature as there would be
in a septic condition, and the
temperature in the majority of cases takes
no longer to fall than in an ordinary
acute scarlet case.

The idea in the article quoted above
favours either true rheumatism or thinks
that the scarlet fever virus itself
occasionally produces inflammation of
articular tissue and a nervous choreic
disturbance analogous to and indistinguishable
from that set up by the rheumatic
state itself. I have been unable to find
any cases here in which these choreic
disturbance occurred,

chorea and scarlet fever.

During the year I admitted four cases
in which there was a history of old...
chores. In none of these cases, three of which had marked affection of the throat, was there any arthritis.
In one only was there recurrence of the chorea, and that in the fifth week.

Cases of True Rheumatism

On the next pages will be found a table of cases of true rheumatism, and following that will be found the notes of a few typical cases.
<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Date of Fugtion</th>
<th>Date of Rheum.</th>
<th>Joints affected</th>
<th>Week</th>
<th>Cardiac</th>
<th>History of Rheum.</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.P.</td>
<td>15</td>
<td>F.</td>
<td>Feb. 24&lt;sup&gt;st&lt;/sup&gt;</td>
<td>March 13&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Hands, wrists, elbows, knees</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>normal</td>
<td>Family Rheumatism was present on Mar. 17&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Discharged with slight Rheumatism.</td>
<td></td>
</tr>
<tr>
<td>A.B.</td>
<td>15</td>
<td>F.</td>
<td>May 9&lt;sup&gt;th&lt;/sup&gt;</td>
<td>June 28&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Fingers &amp; Metatarsals</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>normal</td>
<td>Family Rheumatism</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>A.M.</td>
<td>23</td>
<td>M.</td>
<td>June 9&lt;sup&gt;th&lt;/sup&gt;</td>
<td>July 19&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Ankle &amp; Shoulder</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>normal</td>
<td>Personal acute Rheumatism, 2 years previously</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>A.H.</td>
<td>4</td>
<td>F.</td>
<td>June 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>July 22&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Ankle &amp; Metatarsal</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>systolic murmur on July 22&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Family Rheumatism</td>
<td>Discharged with slight Rheumatism.</td>
<td></td>
</tr>
<tr>
<td>B.Y.</td>
<td>6</td>
<td>F.</td>
<td>Aug 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Aug 16&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Wrist, elbow &amp; Knee</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>systolic murmur on Aug 16&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Family Rheumatism</td>
<td>Discharged after discharge.</td>
<td></td>
</tr>
<tr>
<td>H.B.</td>
<td>7</td>
<td>F.</td>
<td>Aug 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Aug 27&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Knee, Ankle</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>normal</td>
<td>Double Mitral on Aug 27&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Discharged after discharge. Died 17&lt;sup&gt;th&lt;/sup&gt; Dec.</td>
<td></td>
</tr>
<tr>
<td>H.B.</td>
<td>41</td>
<td>F.</td>
<td>Oct 9&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Oct 11&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Hands, Knee &amp; Foot</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>normal</td>
<td>Personal rheumatism</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>H.N.</td>
<td>25</td>
<td>M.</td>
<td>Oct 24&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Oct 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Knee, metatarsals &amp; Hands</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>normal</td>
<td>Mitral systolic murmur</td>
<td>Cured. There was an old Mitral Mitral Murmurs on Admission. R.e. had this on discharge.</td>
<td>Cured</td>
</tr>
<tr>
<td>B.N.</td>
<td>28</td>
<td>F.</td>
<td>Oct 24&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Oct 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Knees, metatarsals &amp; Hands</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>normal</td>
<td>Mitral systolic murmur</td>
<td>Cured. There was an old Mitral Mitral Murmurs on Admission. R.e. had this on discharge.</td>
<td>Cured</td>
</tr>
<tr>
<td>Name</td>
<td>Age</td>
<td>Sex</td>
<td>Date of Eruption</td>
<td>Date of Rhen.</td>
<td>Joints affected</td>
<td>Week</td>
<td>Cardinal</td>
<td>History of Rhen.</td>
<td>Result</td>
<td>Remarks</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>S.N.</td>
<td>22</td>
<td>F</td>
<td>Oct 22</td>
<td>Oct 23</td>
<td>Wrist, Knee, hips, shoulders, Shoulders, elbows, ankles</td>
<td>1st</td>
<td>normal</td>
<td>Family history of Rhen.</td>
<td>Cured</td>
<td>Delirium with first attack. Patient was of a neurotic temperament.</td>
</tr>
<tr>
<td>M.L.</td>
<td>12</td>
<td>F</td>
<td>Oct 26</td>
<td>Oct 31</td>
<td>Lumbar, lumbrals, muscles, lumbar,</td>
<td>1st</td>
<td>normal</td>
<td>Family</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>S.W.</td>
<td>18</td>
<td>M</td>
<td>Nov 5</td>
<td>Nov 12</td>
<td>Shoulders, elbows, shoulders</td>
<td>2nd</td>
<td>normal</td>
<td>Personal pains before</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>A.R.</td>
<td>21</td>
<td>F</td>
<td>Nov 13</td>
<td>Nov 15</td>
<td>Shoulders</td>
<td>1st</td>
<td>normal</td>
<td>Acute rheum. 2 years ago</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>R.N.</td>
<td>22</td>
<td>M</td>
<td>Nov 22</td>
<td>Nov 25</td>
<td>Lumbar, muscles, thighs, calves, Lumbar muscles, calves,</td>
<td>1st</td>
<td>normal</td>
<td>Marked family</td>
<td>Cured</td>
<td></td>
</tr>
<tr>
<td>S.N.</td>
<td>16</td>
<td>F</td>
<td>Nov 24</td>
<td>Nov 28</td>
<td>Wrist, ankles</td>
<td>1st</td>
<td>normal (broad, double joints)</td>
<td>Marked history of</td>
<td>Cured</td>
<td>Janus &amp; purse on arms &amp; legs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dec 11</td>
<td>Knees, rash.</td>
<td>1st</td>
<td></td>
<td>Rhen.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ashby and others say that true rheumatism occurs as a rule during the convalescent period, but in the cases just mentioned we have it occurring in the first second and succeeding weeks.

The true rheumatism, which does occur, both during the acute stage of scarlet fever and during convalescence resembles very much ordinary true rheumatism.

As regards sex in the 15 cases, 12 were female and 3 male, or 80% female. The bulk of the cases were patients over ten years of age. In over 50% of the cases we had pains in the first week but in half of these there was a recurrence during the later weeks of the illness.

Several of the cases which occurred in the first week were recurring cases of old acute rheumatism.

In six of the fifteen there was some lesion of the valves of the heart, two of which were present on admission—the result of old acute rheumatism.

Four of the cases had acute rheumatism before admission and in most of the other...
There was a history of family rheumatism. Below are notes of a few of the cases:

A.P. 15. F. Scarlet Fever + Acute Rheumatism

Feb 23. Onset of illness, malaise, vomiting.

" 24. Influenza, typical scarlet rash.

On admission: history of family rheumatism. Scarlet fever ran a mild course and the temperature was normal on March 3rd. March 13th while patient was still in bed she had pains in wrists, hands, elbows and knees. Fused Salicylate gave 3 pills.

March 14th Paris still present. Joints wrapped in cotton wool. (See temp. chart next page)

March 16th Paris much better. Heart sounds normal.


March 20th Paris gone. Stop soda, salicylate.

" 22nd Recurrence of pains in wrists.

Fused Salicylate and pains had cleared by March 24th. Heart sounds as before.

Patient was discharged on May 4th well, no recurrence of pains but with a persistent mitral aortic murmur. (20 temp.)

Scarlet fever ran a mild course. Family rheumatic history.

Aug 27th pain in ankle & wrists and on same date a double mitral murmur was first noted. The pain disappeared under soda salicylate and wrapping in wood.

Patient developed nephritis and patient died of heart failure on Sept 17th.


On admission patient was very bright and patient seemed collapsed. The fever was very acute.
Heart showed a protodiolic mitral murmur and there was a history of two attacks of acute rheumatism seven and five year previously.
Because of the intensity of the fever and the
crepulated heart the prognosis was rather grave.

The murmur was propagated out towards the
anilla. Heart's apex beat was in 6th space
one inch external to nipple line. Patient had
the Stigmas of Staphylococci 4 to 6 hourly.

On the evening of the 25th she complained of pains
in knees, toetals & hamstrings, very restless, late
she had Peron's Bromide gr.x
Oct 26th very restless night with no sleep. Pains
still severe. Swithed to Salicyl gr. 3 half with
Brandy 2 hul.
Oct 27th restless night, pains still severe, and
pulse fast. Sulfonal gr. tv at 4 pm. With
no result at 10 pm. 30 gave Morphot Hydrocol 4
hypodermically, with a good nights sleep as
the result.
Oct 28th. Pain much lessen. Fluid in
both knee joints.
Oct 29th Pains in joints almost gone. Pains on
prevention relieved by mustard poultices.
Oct 30th Pains greatly gone. Fluid still in knees.
Nov. 1st Fluid gone from knee joints.
A slight recurrence of pains in knees
and wrists.

Nov 12th  Pulse much stronger and no recurrence of angina pains.

Nov 20th  Pulse much improved.

Dec. 21st  Discharged with heart in static.

ج. ر. 22  "Scarlet fever, Delirium, Rheumatism"

Sept. 21st  Admitted Oct 22nd.

Scarlet fever of an acute type with bad throat and enlargement of tonsils.


Brandy 3 fr 2 hours. (See temp chart next page)

Oct 24th  Pains still and still delirious.

" 25th  Pulse better. Stopped Brandy.

" 27th  Restless & delirious still. Much bedches.


Oct 31st  Improving. Pulse 100 fair. Pains less.

Nov. 3rd  Pains now in shoulders. Pulse 96, fair.
Patient now quite clear and rational.
Nov. 7th. Pains in shoulders, elbows and hands.
Sod. Salicylate. Stopped two days ago again given.
Nov. 9th. Pains gone. Stop Sod. Salicylate.
Nov. 20th. Patient up for first time.
Sod. Salicylate. and cotton wool to joint.
Dec. 14th. Discharged, all right. No heart lesion.

A.M. 23. M. Acute 47. with acute rheumatism.
Admitted on June 9th with a mild attack of
Scarlet fever.

June 16th. Desquamating freely.
June 21st. Up for first time.

July 17th. Pain in ankles and shoulders.
Sod Salicylate gr. 4 half. Cotton wool 1/2" pills.

21 Pain easier.

22 Pains quite gone. (see temperature).

[Graph showing temperature and other metrics over time]


Admitted Nov 24th. Discharged Nov 29th.

Heart sounds normal. Sod Palseh. gr. 8 1/2 his.
Dec 17th. Pains quite gone. Stop Sod Palseh.

Jan 8th. Pains in arms and legs went a
considerable number of purpuric spots, mostly about the size of a split pea.
Slight rise of temperature - 99.2° F.
Still fluid in knee joint.
Jan 11th Spots clearing up with rest and
Mist Ferris Perchlor. Knee almost free from
fluid.
Jan 14th More purpuric spots especially on
thighs and abdomen some as large as ½ in.
diameter. No hemorrhages from mucous
membrane. Pains in hamstring. Very
anemic but no cardiac murmurs.
Jan 18th Spots almost cleared up.
Jan 26th Discharged - cured.