|  |  |
| --- | --- |
| Logo AGES | |
| Shigella | |
|  |  |
| 05.02.2025 05:42 Uhr | |

**Shigella**

**Shigella
sonnei,
Shigella
flexneri,
Shigella
dysenteriae,
Shigella
boydii**

Last
change:
02.04.2024

**Profile**

Shigella
are
bacteria
that
can
cause
severe
diarrhoea
(shigellosis,
shigella
dysentery,
shigella
dysentery).

**Occurrence**

Worldwide

**Pathogen
reservoir**

Human

**Infection
route**

Transmission
occurs
by
smear
infection
either
directly
from
person
to
person
or
indirectly
via
Shigella-contaminated
objects,
doorknobs,
laundry,
etc.,
as
well
as
via
contaminated
food
and
contaminated
water.

**Incubation
time**

Half
a
day
to
4
days,
rarely
longer

**Symptoms**

Fever,
crampy
abdominal
pain,
watery
diarrhea.
The
duration
of
the
disease
is
on
average
7
days

**Therapy**

Treatment
with
antibiotics
shortens
the
duration
of
the
disease
and
reduces
the
excretion
of
pathogens

**Prevention**

Appropriate
hand
hygiene
or
personal
hygiene
to
prevent
fecal-oral
transmission
of
shigellosis
from
person
to
person
is
the
most
important
preventive
measure.

**Situation
in
Austria**

The
majority
of
all
Shigella
species
are
imported
by
travellers.
In
Austria,
shigellosis
is
largely
caused
by
*S.
sonnei*
and
*S.
flexneri.*

**Gemeldete
Shigellose-Fälle
in
Österreich**

|  |  |
| --- | --- |
| **Jahr** | **gemeldete Fälle** |
| **2010** | 98 |
| **2011** | 52 |
| **2012** | 58 |
| **2013** | 70 |
| **2014** | 75 |
| **2015** | 96 |
| **2016** | 62 |
| **2017** | 56 |
| **2018** | 69 |
| **2019** | 72 |
| **2020** | 25 |
| **2021** | 39 |
| **2022** | 61 |

**Technical
information**

Shigellae
are
gram-negative,
immobile,
facultatively
anaerobic
rod-shaped
bacteria.
They
are
the
causative
agents
of
shigellosis
(shigella
dysentery).
The
only
relevant
source
of
infection
is
humans
(sick,
convalescent
and
asymptomatic
excretors).

The
risk
of
infection
depends
primarily
on
the
quantity
of
pathogens
excreted
and
the
stool
consistency
as
well
as
the
hygienic
behaviour
of
the
infected
persons.
Therefore,
the
greatest
danger
comes
from
acutely
ill
persons.
Non-human
infections
occur
mainly
in
captive
monkeys,
but
are
generally
of
no
importance
in
the
epidemiology
of
shigellosis.

The
genus
*Shigella*
belongs
to
the
family
Enterobacterales
and
can
be
divided
into
4
species
or
subgroups
(UG)
based
on
their
biochemical
characteristics
and
specific
O-antigens:

* *S.
  dysenteriae*
  (subgroup
  A)
* *S.
  flexneri*
  (subgroup
  B)
* *S.
  boydii*
  (subgroup
  C)
* *S.
  sonnei*
  (subgroup
  D)

The
strains
within
subgroups
A-C
can
be
subdivided
into
serovars.
*S.
sonnei*
is
serologically
uniform
and
consists
of
one
serovar.
In
Austria,
about
80
%
of
shigelloses
are
caused
by
*Shigella
sonnei*.

**Distribution**

Shigellae
are
distributed
worldwide.
In
Central
Europe
*Shigella
sonnei*
and
*Shigella
flexneri*
are
endemic.
A
large
proportion
of
all
cases
of
shigellosis
in
Austria
are
imported
by
travellers
(about
60-70%
of
reported
cases),
with
the
pathogens
most
frequently
being
imported
from
Egypt,
India
and
Morocco.
Inadequate
hygienic
conditions
and
cramped
living
quarters
(camps,
retirement
homes,
kindergartens,
schools)
favour
the
spread
of
the
disease.

**Transmission**

Transmission
usually
occurs
through
direct
or
indirect
smear
infection
via
contaminated
hands.
The
infection
can
spread
indirectly
via
food,
drinking
water,
bath
water
or
contaminated
objects.
The
pathogens
causing
shigellosis
can
also
be
easily
transmitted
during
sexual
anal
contact.
Education
due
to
the
increased
risk
of
transmission
among
MSM
(men
who
have
sex
with
men)
is
especially
important
in
the
context
of
the
clustered
occurrence
of
multidrug-resistant
Shigella
strains.
Where
appropriate,
mostly
in
developing
countries,
flies
play
a
role
as
vectors.
The
infectious
dose
of
Shigella
is
very
low.
Even
a
minimal
amount
(10-200
germs)
is
sufficient
to
cause
clinical
symptoms.
The
reason
for
this
is
a
relatively
high
acid
tolerance
compared
to
Salmonella.

**Disease**

Incubation
period:
0.5
to
4
days,
rarely
longer.
All
shigellae
produce
an
endotoxin
consisting
of
lipopolysaccharides,
which
is
responsible
for
the
inflammatory
irritation
of
the
intestinal
mucosa.
Invasion
into
the
epithelial
cells
of
the
colon
is
facilitated
by
the
ipaH
(invasion
plasmid
antigen
H)
gene.
Some
Shigella
species
(primarily
*Shigella
dysenteriae*
1)
also
produce
an
exotoxin
(Shiga
toxin)
that
can
lead
to
severe
disease
with
CNS
involvement.
The
disease
varies
between
mild
courses
with
minor
watery
diarrhea
and
severe
disease.
The
occurrence
of
bloody-mucous
stools
corresponds
to
the
clinical
picture
of
dysentery
(hence
the
name
shigella
dysentery,
bacterial
dysentery).
Typical
bacterial
dysentery
begins
with
fever,
cramping
abdominal
pain,
and
watery
diarrhea.
The
presence
of
mucus,
pus
and
blood,
which
are
absent
in
mild
cases,
are
characteristic
of
dysentery
stools.
In
typical
cases,
20
to
30
bowel
movements
occur
daily,
which
are
associated
with
a
painful
urge
to
defecate
(tenesmus).
The
amount
of
stool
produced
in
each
case
is
small.
Shigellosis
is
often
accompanied
by
abdominal
cramps
and
vomiting.
In
severe
cases,
epithelial
necrosis
and
ulcers
may
occur
in
the
colon.
In
rare
cases,
Reiter's
syndrome
(caused
primarily
by
*S.
flexneri*)
and
hemolytic
uremic
syndrome
(caused
by
Stx-positive
*Shigella*
spp.)
may
also
occur.

The
duration
of
the
disease
varies
depending
on
the
course
and
is
on
average
7
days.
Contagiousness
exists
primarily
during
acute
infection
(i.e.,
as
long
as
the
person
shows
symptoms
of
illness)
and
as
long
as
the
pathogen
is
excreted
in
the
stool;
this
may
be
1-4
weeks
after
the
acute
phase
of
illness.
Excretion
over
a
longer
period
is
rare.
In
asymptomatic
carriers,
excretion
may
continue
for
several
months.
About
half
of
all
shigelloses
have
an
abortive
course,
which
occurs
as
mild,
short-lived
diarrhea
without
blood
in
the
stool.
These
forms
are
epidemiologically
particularly
dangerous
because
they
are
usually
not
recognized.

**Therapy**

Treatment
with
antibiotics
shortens
the
duration
of
the
disease
and
reduces
the
excretion
of
the
pathogen.
In
industrialized
countries,
Shigella
infections
are
mostly
caused
by
*S.
sonnei.*
They
are
often
mild
illnesses,
and
antibiotic
therapy
is
not
mandatory
but
may
be
indicated
to
prevent
secondary
infections.
Due
to
the
widespread
and
rapidly
developing
resistance
in
shigella,
therapy
must
always
be
guided
by
the
antibiogram.
The
attending
physician
decides
on
the
necessity
of
antibiotic
administration.
Motility
inhibitors
should
not
be
used
in
the
treatment
of
shigellosis.
Parenteral
compensation
of
fluid
and
electrolyte
loss
is
primarily
used
in
patients
with
chronic
underlying
diseases
and
in
very
young
and
elderly
patients.

**Prevention**

Appropriate
hand
hygiene
or
personal
hygiene
to
prevent
fecal-oral
transmission
of
shigellosis
from
person
to
person
is
the
most
important
preventive
measure.
Shigella
is
often
spread
through
toilet
facilities
in
schools
and
kindergartens,
so
adequate
cleaning
is
always
necessary
in
these
areas.
Due
to
the
lower
"hygiene
awareness"
of
young
children,
thorough
hand
washing
with
soap
and
water
after
visiting
the
toilet
should
be
practiced
and
controlled,
especially
in
kindergartens.

Teachers,
students,
school
staff
and
employees,
and
visitors
to
other
children's
community
facilities
who
have
or
are
suspected
of
having
shigellosis
shall
not
use
school
facilities
or
similar
facilities
or
attend
their
functions
until
medical
judgment
indicates
that
they
are
no
longer
likely
to
spread
the
disease.
Persons
suffering
from
or
suspected
of
suffering
from
shigellosis
or
excreting
shigella
may
not
work
or
be
employed
in
the
commercial
production,
handling
or
marketing
of
foodstuffs
if
they
come
into
contact
with
the
latter
in
the
process.
This
also
applies
mutatis
mutandis
to
employees
of
restaurants,
canteens
and
other
areas
in
and
for
communal
catering.

**Diagnostic**

Differentially,
a
multitude
of
other
pathogens
of
intestinal
infections
as
well
as
non-infectious
causes
have
to
be
distinguished.
Mild
forms
of
shigellosis
may
be
confused
with
salmonellosis
or
with
infections
of
viral
origin
such
as
noroviruses,
adenoviruses
or
rotaviruses.
In
the
presence
of
bloody
stools,
infections
with
Campylobacter,
*Yersinia
enterocolitica*,
enteroinvasive
and
enterohaemorrhagic
*E.
coli*,
*Clostridium
difficile*,
*Aeromonas*,
in
case
of
return
from
warm
countries
amoebiasis
or
lamblia,
in
elderly
persons
additionally
carcinoma,
in
children
intussusception
should
be
considered.

Clinically
and
anamnestically
only
a
tentative
diagnosis
can
be
deduced.
The
diagnosis
of
shigellosis
can
only
be
made
by
bacteriological
stool
examination.
Fresh
stool
(possibly
also
freshly
taken
rectal
swabs)
is
the
most
suitable
material
for
examination.
At
least
the
rectal
swabs
must
be
transported
in
buffered
medium.

In
the
primary
laboratory,
the
pathogen
is
detected
from
the
stool
either
conventionally
by
isolation
using
selective
agar
and
subsequent
biochemical
and/or
serological
identification,
or
using
PCR
systems.
However,
this
molecular
biological
detection
cannot
distinguish
between
Shigella
and
EIEC
(Enteroinvasive
*Escherichia
coli*),
therefore,
if
the
PCR
result
is
positive,
this
method
requires
additional
isolation
or
identification
of
the
pathogen.

Shigella
isolates
are
sent
by
the
primary
laboratories
to
the
National
Reference
Centre
for
Shigella
in
Austria.
The
strains
received
by
the
reference
centre
are
typed
by
means
of
serotyping,
biochemotyping,
phage
typing
(only
for
*Shigella
sonnei*),
MLST
(multilocus
sequence
typing)
and
cgMLST
(core
genome
multilocus
sequence
typing).
Antibiotic
resistance
testing
is
performed
on
all
isolates.

**Contact**

**National
Reference
Centre
for
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