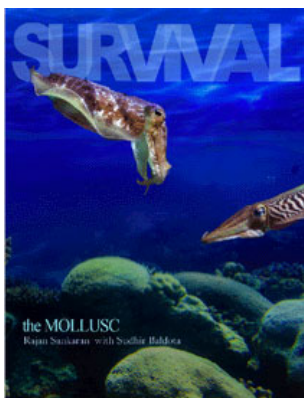


Rajan Sankaran Survival - The Mollusc

Leseprobe

[Survival - The Mollusc](#)

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Outline

- Introduction
- The Anatomy of a Muricid Snail
- The Chemistry of Murex's secretions
- Reproduction and Life cycle of a Muricid Snail
- The Behaviour and Food habits of a Muricid Snail
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- Cases of *Murex purpurea*
- A Summary of the Muricid
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Introduction

Muricids are sea snails that live on seabeds at depths of five to twenty-five feet. They are found in different regions throughout the world, most commonly the Atlantic shores, the Mediterranean Sea and the Indian Ocean. The ones that live in rocky shallows are called Rock Snails or Rock Shells.

The family *Muricidae* is a large one, and has more than 500 species of various genera. The term '*Murex*' was used by Aristotle to denote these kinds of snails and was used for a large number of genera and species in the *Muricidae* family. However, many of them have been regrouped and now the genus *Murex* refers only to the species found in the Indo-Pacific seashores. Muricids found in the Atlantic seas are placed in the genus *Haustellum*.

The distinctive features of muricids are two:

- Sculptured spiral shells, adorned with **pointed spines** and fronds.
- A glandular secretion that turns a purple colour when exposed to air.

The shells are collector's items and some can fetch a fair price. Because of the purple glandular secretion, these snails are also called Purple Snails. But some sea snails of the family *Thaididae* also secrete a similar substance.

The Anatomy of a Muricid Snail

The shell is usually thick, with many ornamental knobs, ridges, fronds and **spines**. There is an operculum and a long siphonal canal. As in all gastropods, the shell **grows in spurts**. It grows a whorl, and then remains relatively static at a size for some time, during which varices – small **ridges** – develop, and then it rapidly puts on another whorl.



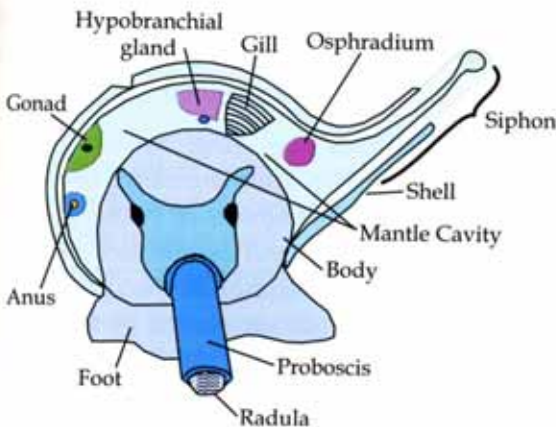
The proboscis is well developed and extensible. The radula has only three denticles. It is adapted for tearing flesh.

Muricids, like many other sea snails, have a *hypobranchial* gland, a special gland located in the mantle, next to the gill. This secretes, along with mucous, a clear substance containing chromogens which turns purple on exposure to oxygen and light.

The main function of the **mucous** of the hypobranchial gland is to trap particles that enter into the mantle cavity during respiration. It also enables easier locomotion. The hypobranchial gland secretes the mucous along with the chromogens continuously, but under stimulation, it can rapidly increase secretion. When the animal **contracts vigorously**, the cells in the gland burst

open, releasing their contents – *muricin* – into the mantle cavity where it mixes with mucous and seawater and then is **expelled** externally.

The muricid's foot is muscular and used for locomotion along the seabed. **Waves** of muscular contraction effect a **gliding creeping** movement. It **crawls** in search of food and a mate.



The Chemistry of Murex's Secretions

The muricid's hypobranchial secretion, on first appearance colourless, turns, when placed in the sun, to light green at first, then a deep green, then dull sea green, then blue, then purplish red. This is because it contains 6,6'-dibromoindigo and/or additionally indigotin. Both Bromine (reddish-brown) and Indigo (dark blue) are responsible for the colour purple.

Both Bromine and Indigo have antimicrobial properties. Bromine, a reddish-brown liquid at room temperature, is used by humans for disinfection in water and in pesticides. It is also used as a flame retardant, in drilling fluids, photographic chemicals and the manufacture of rubber. The word *Bromine* comes from the Greek 'bromos,' which means 'stench.' Its odour is intense and highly irritating to eyes and respiratory tract. If inhaled or swallowed, it can cause even death. It damages the skin too. Bromine does not dissolve completely in water. Additionally, Bromine is naturally found in seawater and underground salt beds as Sodium bromide and Potassium bromide. No significant toxicological effects of 6,6' dibromoindigo have as yet been established.

However, the gland of Murex snails also produces an active organic compound called *Murexine*, a choline derivative of β -[4-amidazoly]-acrylic acid [urocyanic acid] and 5-hydroxytryptamine. *Urocyanic* acid has cholinergic effects, which means that it induces **contraction** of skeletal muscles and decreases the contraction of cardiac muscles. *5-hydroxytryptamine*, being an important neurotransmitter in human brains (serotonin), influences moods, resulting in a sense of depression and **isolation**, and it also affects gregarious behaviour.

Murex brandaris is known as a cause of 'shellfish poisoning', which, having a paralytic effect causes muscle weakness. Shortly after ingesting the flesh, the victim may experience paraesthesia; tingling, numbness or burning of the mouth, tongue and lips. It then spreads to the scalp and extremities. Sensory perception and proprioception are affected and locomotion becomes incoordinated. There is general weakness and malaise, accompanied by increased perspiration and salivation, headache, thirst, nausea and vomiting. In more severe cases, ataxia, incoherent speech and aphonia may occur, with dizziness, tightness of the throat and chest, and pain on deep inspiration. The poisoning can even result in fatal respiratory paralysis. If the patient survives the first ten to twelve hours, the prognosis is said to be good.

Plicopurpura pansa and *Plicopurpura patula* are two other muricids that also produce purple.

Unique Anatomy of the Muricid

Fortified shell bearing prominent ridges and spines
Hypobranchial gland, which expels an offensive,
irritating secretion

Reproduction and Life Cycle of a Muricid

The sexes are separate and mating has an annual peak, with individuals congregating for mating around springtime. Fertilisation is internal and eggs are laid in yellow capsules, in crevices along the shoreline during the months of April and May. The young feed on unfertilised eggs within the capsules and then emerge as fully formed miniature adults. They face the risk of **drying out** if exposed above the waterline at low tide, and many die from this. Those that survive attain full maturity after three years.

The Behaviour and Food Habits of a Muricid snail

All Murex species are carnivores or scavengers. They very often eat other gastropods. Muricids also eat shrimp, sponge and algae. They are most well known for their predation upon bivalves, by **boring** holes into their shell. The muricid usually prefers to stay on a rocky substrate, rather than sand, and this is how it got the name 'Rock Snail'.

Muricid Attack

Preying on other molluscs, notably bivalves such as clams, mussels and oysters, the muricid uses three methods to reach the soft animal within: a secretion for **corroding** holes in shells, **drilling** holes by **rasping** with the radula, or forcefully **wedging** or **prying open** a shell with its proboscis.

As the teeth **grind into** the shell of the prey, an accessory organ secretes a fluid that slowly **dissolves** the calcium carbonate of the shell of the bivalve. Thus the muricid **bores a hole** through the shell, then reaches in with its proboscis and digests the **soft body** of the mollusc within, **sucking it out**. One study of the muricid *Purpura lapillus* showed that its accessory-boring organ produces carbonic anhydrase, which dissolves calcium carbonate. Higher concentrations of carbon dioxide, sodium chloride and/or potassium chloride in the seawater accelerate the dissolutive action of carbonic anhydrase on calcium carbonate, and **boring** takes place more rapidly.

Murex purpurea

The proved species mentioned in the traditional homoeopathic texts is not identifiable any more. It could be compared with *Murex brandaris*, now called *Haustellum brandaris*, or *Murex trunculus*, now called *Hexaplex trunculus*. The word 'purpurea' means 'purple' in Latin.

Haustellum brandaris

Synonyms: *Murex brandaris*, *Bolinus brandaris*

Purple Dye Murex, Spiny Dye Murex

Family: *Muricidae*

Genus: *Haustellum*

Species: *H. brandaris*

The size of the shell ranges from 1 to 6 cm. It is usually light brown in colour and has a low spire with rounded whorls. It is sculptured with a row of knobby spines, which correspond to the end of each growth stage. It has a very long siphonal canal

Haustellum brandaris is a predatory carnivorous muricid. Its secretion is milky but quickly turns to reddish purple when exposed to air.



Hexaplex trunculus

Synonyms : *Murex trunculus*, *Phyllanotus trunculus*, *Truncullariopsis trunculus*

Banded Dye Murex

Family : *Muricidae*

Genus : *Hexaplex*

Species : *H. trunculus*

Its secretion was also used by the ancient people of Tyre. Its colour is more dictated by indigo and hence is a shade bluer than that of the secretion of *H. brandaris*. *Hexaplex trunculus* is one species of muricid snail that is vulnerable to the development of imposex.



***Murex purpurea* in Homoeopathic Literature**

The remedy is made from 'a viscous juice, found in a small sac between the heart and liver...It is insoluble in water, alcohol or ether; consequently for homeopathic use the attenuations are prepared by trituration.' [*Lectures on Materia Medica* - C. Dunham]

Below are proving symptoms extracted from Allen's *Encyclopaedia*, Allen's *Keynotes*, Clarke's *Dictionary*, Dunham's *Materia Medica*, Hering's *Guiding Symptoms*, Phatak's *Materia Medica* and Vermeulen's *Prisma*.

Generalities

Extreme lassitude...weariness...debility...feebleness.

Pains *worse when sitting than when walking*; and those which I cease to feel while stirring about, return almost immediately on sitting still.

Mind

'It made me miserable; I was so low-spirited that I gave up everything; I had no strength left.' Great depression of spirits.

Sleep with troubled dreams; 'I fled from a stormy sea, and found myself once again in a meadow with water.'

Physical Symptoms

Heaviness of the head, better bending head backward.

Constriction in the head, tightness and cramp-like squeezing in the occiput.

Buzzing in the ears with increased heaviness of the head.

After violent exercise, bearing-down sensation.

Violent hunger; hunger even after a meal.

A peculiarly distressed sinking sensation in epigastrium.

Sinking sensation in the stomach. All-gone sensation in epigastrium.

A violent lancination...in the abdomen, downwards; it ascended vertically.

An acute sensation in the abdomen, as if from a sharp point in the left side.

Sharp pain as of a cutting blow in hypogastrium. Weight in hypogastrium.

Pressure in anus, like painful lancinations.

Sensation of heavy weight pressing on rectum, swelling of haemorrhoids.

Enlargement and sensitiveness of the bowels.

Breasts very painful...sharp and painful stitches in them.

Raw, burning sensation, and bruised pain in the chest.

Pungent burning under the left false ribs...in paroxysms.

Cases of *Murex purpurea*

Murex purpurea: Case 1

From Dunham's *Lectures on Materia Medica*

'I have in my records a case of a large cyst, supposed to be connected with the left ovary, which occupied the space between the rectum and uterus and vagina, so as to obliterate the posterior *cul de sac* and almost occlude the vagina. In addition, it somewhat distended the abdomen. The patient had been confined to her room and bed for more than a year. The subjective symptoms so clearly indicated *Murex* that I gave the sixth...within three weeks the tumor discharged a limpid fluid per vagina, and the local as well as general symptoms completely vanished, so that in a month thereafter the patient would walk freely and look after her housekeeping, nor has she since (for five years) been disabled or ailing.'

Murex purpurea: Case 2

From Kent's *Clinical Cases*

Mrs. K., aged 40, a midwife.

She complained of the abdomen; she believed she had a tumour. Severe knife-cutting pain in the region of uterus running up to left mamma; pains, undefined, running up and through pelvis, worse lying down, aching in the sacrum, **dragging** down in the uterine region as if the uterus would escape.

Empty, "all-gone" feeling in the stomach.

Greenish-yellow leucorrhoea, with itching in labia and mons veneris; intense sexual desire. The os uteri was said to be ulcerated and eroded, and it was sensitive to touch. The contact of the finger with cervix brought on the sharp pain that she described as running to the left mamma. The uterus was enlarged and indurated. She had been the mother of several children; had had several abortions, and was accustomed to hard work. Her catamenia were quite normal.

To take up the important and guiding features of this case we must compare several remedies, but principally *Murex* and *Sepia*. The cutting pain in the uterus has been found under *Curare*, *Murex* and *Sepia*. But *Murex* is the only one producing a cutting pain in the uterus going to the left mamma. The "all-gone" empty feeling in the stomach is characteristic of *Murex*, *Phosphorus* and *Sepia*. "Throbbing in the uterus" belongs only to *Murex*. Both have a yellowish green leucorrhoea. Pain in sacrum is common to *Murex*, *Sepia* and many others. The pains in *Murex* go upward and through, worse while lying down. In *Sepia* the patient is better lying down, and the pains go around.

Murex 200, one dose was given.

She was much worse for several days. Then improvement went on for two weeks. The remedy was again repeated. One year later she complained of a return of her symptoms. One dose was followed by relief, since which time she has made no complaint.'

***Murex purpurea*: Case 3**

Anne Wirtz

The case is concised and grammatically altered for easier reading.

First interview: September 2003

A Muslim woman, aged 27 years, came to my practice dressed in a long overcoat and with her hair covered with a scarf. She has a round friendly face.

Chief complaints: Facial acne since the age of sixteen years, and soft hair on her face. The acne flares up with 'tension'.

She gets tired easily and cannot tolerate hunger. She is married and has a six-year-old daughter. She would like to have another child but she fears the labour pains. During the first delivery she suffered for twenty-four hours without dilatation. "I did not expect it to be so hard. The final pushing was easy and she came in eight minutes. I had some small ruptures, which were stitched.

"I am very sensitive to pain. During my period I suffer from pain in the vaginal edges, I can't sit on it, there is a downward pressure as if pushed out. I sometimes have these pains when I have the flu. I have to lie down with a hot bottle under my feet, which relieves it, a cold floor I feel immediately. After a cold there is stitching in the vagina and a distended belly, then it can get very bad a few times a year. It can be quite sensitive during sex. I like sexual satisfaction. I cannot do without sex now that I know it. Before marriage it did not play a role in my life. Even during my pregnancy we had sex till the very last day. My husband is very considerate. We have a good marriage. I have some anxiety that he might be unfaithful. The most important thing in my life is my family, my husband and child."

She has had cystitis several times. She gets distension of the stomach from eating onions. What about stress? "Travelling, I have a fear of flying, I get travel-sick in a car. Odors aggravate it. I get dizzy when tired, eating makes it worse, only lying down relieves it."

She drinks a lot; water, tea etc. Dreams: unremembered. Hobbies: Cooking and baking.

She can swim but underwater is quite scary for her. She likes to be in calm motion.

Analysis

Because of the classic labour-like pains and her strong sexual appetite it was quite easy to choose *Murex purpurea* MK.

It was remarkable how openly and freely she talked about her sexual life although she had a quite timid look. The total body cover made it even more striking. Because of the analogy of this sea animal living tightly enclosed in its armor-like cover with a narrow ventral opening, I decided to give this case in detail and to underline the, in my view typical, symptoms to the remedy.

Follow-up three weeks later

She went on holiday. "I enjoy the beauty, but I prefer to be at home. I feel well. My skin is fine now. My energy is better. The swelling of hands and feet is much less and the perspiration in the armpits seems to be less."

No medicine.

I saw her twice in the next six months and gave her one repetition of *Murex* MK.

Follow-up March 2004

She informed me that she was pregnant. She had nausea and a craving for sour.

Follow-up June 2004

The pregnancy is going well but her feet and hands are quite swollen. Periodically she has cramps in the legs. She does not like to be fat, "It is not beautiful. I want the baby but not the pregnancy."

She has developed an aversion to milk and likes sour apples.

"If I walk with bare feet I feel the pressing pain in the vagina, like before."

I gave her *Murex purpurea* LM-1 to take whenever she felt the need for it.

At the beginning of November 2004 she gave birth to a healthy baby boy. The birth was much easier than the first. It took place within six hours this time.

About eight months later I saw her again and she was doing well, though she wanted to lose weight.

Murex purpurea: Case 4

Resie Moonen

Ms. E., aged thirty-one years.

First Consultation in March 1999:

The patient is a teacher and works full time at a primary school. She's twenty-nine weeks pregnant with her first child.

It was difficult for her to get pregnant. In the end the gynecologist did intra-uterine insemination with the sperm of her husband, and then she got pregnant.

During the first three-four months of the pregnancy she had nausea worse from odors, with vomiting, and she was very weak and tired.

In the last weeks she has an increasing pain in her pelvis. It is a heavy, oppressive pain, worse walking, and better by crossing limbs. She also has painful tubercles, and she feels as if the bones are too loose, that she has to hold them, or wear a tight bandage. She feels that the femur moves too freely in the hip joint, and it may go out, if she does not bandage it.

Everything aggravates by walking and standing – she feels best when sitting cross-limbed. The pain hinders her in her work. She can't write on the blackboard, and has to sit all day. The general pregnancy parameters are normal, the foetus is doing okay.

Other aspects she talks about

She is very sensitive to injustice: she withdraws or talks about it very openly. She suffers when a child gets beaten by its father. She cannot handle aggressiveness. She is not aggressive herself. She is an 'open' and active woman, and she has a strong sexual desire, also in this pregnancy, even with the pelvis pains.

She has a skin allergy aggravated by the sun. Her menses started normal at the age of twelve years, but she always felt her ovulation painful, and during her menses she has a bearing-down sensation. She likes to cross her limbs. She frequently has an empty, hungry feeling in her stomach

Desires: chocolate. Aversion: Fish³, tomato², coffee³.

During this consultation in March 1999 (when I did not work at all with the Sensation method, but I only collected the symptoms and repertorised) I noticed the following symptoms:

Rubrics/symptoms in this case

MacRepertory

Gen: Relaxation of muscles

Extr: Weakness, joints, pregnancy during: Murex (1,0)

Extr: Pain, lower limbs, hips

Stomach: Emptiness, hungry feeling

Female: Pain, bearing down, crossing limbs amel.

Female: Pain, bearing down, uterus, sitting amel.

Vermeulen's Synoptic I

Worse in sun

Better sitting and crossing limbs

Better pressure and support

Phatak' Materia Medica

Walking difficult, all joints are weak during pregnancy

As if bones of pelvis getting loose.

I gave the remedy *Murex 30 C* and *Murex 7 C* each day. The pain in the pelvis disappeared, and she did not need to wear the bandage anymore. Her stomach problems disappeared. She had much more energy. Two months later, she delivered a daughter without problems and didn't have pelvic pains after birth.

Six months after the delivery of her first child she got pregnant easily, spontaneously. In the seventh month of this pregnancy the pelvic problems started again, with again the sensation that the bones are too loose, and as if the femur could easily go out of the hip joint because of the looseness.

I gave her again *Murex 30 C* once and *Murex 7 C* each day, and the pains disappeared immediately. In 2002 I repeated *Murex 200 K* once because of bearing down pain during menses and some pelvis pain during menses only. She had a very good reaction and the pains never appeared again.

Important words and symptoms in the case

Aggressiveness

Withdraws

Bearing down in pelvis

As if bones of pelvis were loose

Murex purpurea: Case 5

Resie Moonen

Ms. N., aged thirty two years.

The first consultation was in November 1999.

Chief complaint: Severe problems with walking, moving and standing. It is eight months since she delivered her child. She had severe pelvic pains during that pregnancy: From the fourth month onwards she could hardly walk, because of pains in the pubic symphysis, the hip joints and in the lower back. The gynecologist even started the delivery two weeks earlier, by induction of labor, because she could not walk at all anymore. After her delivery the pains did not disappear: she still has severe pain in the hip joints and pubic symphysis on walking, ascending stairs, as if the bones are too loose.

She has severe bearing-down pains during menses, worse walking and standing. She wants to cross her limbs. She has the sensation that her uterus could fall out of her vagina, and she presses on her vulva to prevent it.

A Summary of the Muricid

The Muricid Snail is called Rock Snail because of its tendency to live predominantly among rocky substrates to which it clings, as moving tides wash over it. The distinctive morphological features of this snail are the external ornamentation of the shell with long spines and its hypobranchial gland which expulses into the mantle cavity and outward an offensive pigment-containing mucous secretion when its operculum is pressed. Therefore the discharge occurs often as a reflex defence action. The secretion turns purple on exposure to oxygen, and was used by humans as a fabric dye for many centuries.

The muricid is a carnivorous snail, often preying upon other molluscs. It attacks bivalves by drilling or boring a hole in the shell, then reaching in with its proboscis and digesting the soft body inside, sucking it out. Sometimes a muricid may chip away at the edge of a bivalve's shell with the lip of its own. *Haustrum haustorium* envelops barnacles and chitons with its mantle, thus smothering them.

It faces threats similar to those of other sea snails – being pulled out or smashed or broken by predators, or drying out and withering if out of water for too long. It frequently preys upon mussels that also grow on rocky substrates, and while it is boring into a mussel, the mussel may bind down the muricid with its byssus threads, thus immobilising it. This eventually leads to its death from starvation and/or dessication. The muricid is also vulnerable to the toxic effects of *tributyltin* in the water, which blocks the oviduct of females, causing them to develop male sexual organs. This phenomenon is called Imposex.

Expressions of Murex in the Patient

In the course of deep, non-leading case taking, the patient will express with significant energy the issues and sensations of the animal kingdom, the phylum Mollusca, the class Gastropoda and the sub-group of the Muricid.

Snail

Spiral, twist, helix, curl, twirl, loop

Take my house with me

Extend, emerge, protrude

Crawl, creep, glide, slide

Slime, pasty

Possibly common to a number of sea snails:

Heaviness, bearing down, dragging

Cutting, lancinating, shooting,

Boring, drilling, grind into

Wedge, prise, pry open, chip away

Tear, rip, slash, shred, slice

Smother, envelop

Excoriating; corrosive, burning, dissolving

Numbness, paralysed

Drain out, pour out

Murex

Purple, magenta

Long and pointed spine, spike

Profuse, coagulated, clotted blood

Offensive stench or smell

Burst open, expulse, expel

Distinctive proving symptoms

As if bones of pelvis were loose

Pushing out, bearing-down sensation in abdomen

Sinking, 'all-gone' sensation in epigastrium

Dilation, enlargement, expansion

Consciousness of the womb

Excessive sexual desire





Rajan Sankaran

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