

SCOMBROID POISONING



“The Shrimp Girl”, oil on canvas, William Hogarth, c.1740-45, National Gallery, London.

“Who but a bigot, even to the antiques, will say that he has not seen faces and necks, hands and arms in living women, that even the Grecian Venus doth but coarsely imitate”

William Hogarth.

“The greatest of his sketches, The Shrimp Girl, is not spectral at all but radiant with life. As if the girl were moving fast towards us, her wicker platter of shrimps with its carefully balanced measuring jug cuts right across and out of the frame, its lattice work painted so fast that Hogarth’s brush has raced down onto her green hat beneath. This is a moment caught on the wing, and Hogarth conveyed all the movement in the girl’s body as he loaded his brush with pinks, vermilion and greens - the bright colours of the rococo palette - and made fast curving strokes to outline the fall of her shoulders and breasts. Framed by her hat, with its loose white ribbons, her hair curling freely beneath its brim, she glances quickly sideways and grins at a joke, or a compliment no one will hear. The light is caught and reflected in her wide dark eyes and her open smile...”

...He had always drawn street sellers. When he was a boy, longing to paint and admiring Thornhill’s swirling baroque heavens, Laroon’s “The Cries of London”, were selling in every printshop. From these popular images, like Venus from the sea, emerged his own street goddess, glimpsed in a crowd, beating her drum, treading the street with her milk-pail on her head. Domesticated, shorn of her sexiness, she protects the poet in his garret, or rides a cart behind an army with a babe at her breast. His shrimp seller pretends to be nothing but herself - yet Hogarth, with his brushes and pigments, had shown beauty and grace more erotically alive on a London street than in any classical sculpture”.

Jenny Uglow, “Hogarth”, 1997

The oeuvre of William Hogarth can be summed up as perhaps one of the first graphic social commentators to capture the culture of a modern urban society. He painted and etched not only the great but also the everyday person on the street in their natural Eighteenth century daily surroundings. He produced a genre of print widely popular in Eighteenth century Europe, that featured everyday street-criers, artisans and hawkers. He would sit in the streets and capture images of these common people. Brilliant at capturing the form and ambiance of the fleeting moment, there is no better example than his “Shrimp Seller”. There is no doubt that the Shrimp Girl was a real person, glanced by Hogarth for a instant in a crowded and bustling street market as she hurried past.

The streets of London, in the Eighteenth century were crammed full of every type of artisan, crier, hawker, pick pocket and dandy. Anything could be found from political pamphlets to sex - but from the great multitude one afternoon it was the simple Shrimp Girl that caught Hogarth's sharp attention - and he would capture this unknown girl in one of his final works, a work the girl herself would never have even been aware of. As she rushes past she glances back over her shoulder perhaps sharing a joke with someone or as Jenny Uglow wonders, giving momentary embarrassed acknowledgment to a compliment thrown to her from an unseen admirer. He captures the instant of this exchange, with her jaunty lively face, her free flowing ribbons and her basket balanced

skillfully on her head - radiating life and a mischievous energy. With his photographic memory he sketched her likeness on the spot, then took it back to his studio to refine. He immortalized an ephemeral human interaction on a London street well over two and half centuries ago - an image frozen in time of the unlikely grace and beauty of the street. He kept the work with him - unfinished - till the day he died.



“New Mackerel”, by Francis Wheatley (1747-1801), from his print series “The Cries of London”, which depicted various street sellers of the 1790s

The commonest and most popular fish to be sold by Eighteenth century hawkers of London was the Mackerel. Probably because the fish would not keep satisfactorily, Mackerel-sellers were granted the privilege of selling their wares on Sundays. This was just as well, as before the days of refrigeration fish would spoil quickly unless preserved in salt. Mackerel is a member of the Scombroid family of fish, which are prone to result in scombroid poisoning unless eaten fresh. Many Eighteenth century eaters of Mackerel would have been afflicted with this condition, if it weren't for the privileges granted to the street Mackerel sellers.

SCOMBROID POISONING

Introduction

Scombroid poisoning is seen with ingestion of the “scombroid” family of fish.

It is due to the ingestion of fish that contain high concentrations of **histamine**, which accumulates during spoilage of the fish.

Clinically scombroid poisoning is similar to an acute allergic reaction and is treated along similar lines.

Death from scombroid poisoning is very uncommon, but has been recorded. Pre-existing asthma could represent a risk factor for severe or life-threatening reactions.⁴

Pathophysiology

Fish species involved:

Fish in the Scombridae family are particularly the cause.

The following have been implicated:

- Tuna
- Mackerel
- Kingfish
- Albacore
- Wahoo
- Needlefish.
- Sardines
- Swordfish
- Marlin
- In Australia it has been seen in association with Western Australian Salmon.

Toxin:

1. “Scombrototoxin” (this is essentially histamine).

2. Histamine is **heat stable**.
3. It is produced in the fish by bacteria naturally occurring in the fish.
 - These bacteria convert **histidine** to **histamine**.
 - This reaction occurs after the fish is caught.
4. Maximal spoilage occurs at 20⁰ C
5. Note that the patient is not “allergic” to the fish species.
 - The cause is exogenous histamine and not mast cell degranulation.

Clinical Features

The onset of symptoms is rapid, usually within 30 minutes, to a few hours.

Symptoms then relate to exogenous histamine:

1. Tingling around the mouth and lips
2. Skin effects:
 - Diffuse erythema, urticaria, pruritus, flushing.
3. GIT upset:
 - Nausea, vomiting, abdominal cramps, diarrhoea
4. Respiratory:
 - Wheeze.
5. CVS:
 - Dizziness, (hypotension)
6. Headache

Symptoms usually resolve within **6-12 hours**, (rarely up to 24 hours).

In most cases the symptoms are mild to moderate, but deaths have also been recorded.

A woman and her daughter both died in **Bali** in 2014 from scombroid poisoning. Both were asthmatics. Asthma possibly represents a risk factor for more severe - life threatening reactions.⁴

Differentiation from true allergic/ anaphylactic reactions can be problematic in isolated cases, but when multiple cases occur together, the diagnosis of scombroid poisoning becomes far more probable.

Investigations

The diagnosis is usually a clinical one.

It can be confirmed by the measurement of histamine levels in the fish

Fish histamine levels:

- < 0.1 mg/100 gms of fish is normal
- 20 mg/100 gms of fish indicates spoilage.
- 50 mg/100 gms of fish is likely to cause symptoms.

Management

1. Antihistamines:

These are the mainstay of treatment.

Both H₁ and H₂ receptor antagonists should be used:²

Give:

- **Promethazine** 10 to 25 mg (child: 0.2 to 0.5 mg/kg) slow IV

And

- **Ranitidine** 50 mg (child: 1 mg/kg up to 50mg) IV.

2. Bronchodilators:

- In more severe poisoning bronchospasm may occur and should be treated with bronchodilators

Give salbutamol 5 mg by nebuliser.

3. Fluids:

- Treat any hypotension with fluid administration, as required.
4. Adrenaline:
 - Adrenaline may be given if symptoms are very severe/ refractory.
 5. Steroids are not beneficial.

Prevention:

Histamine is not destroyed by cooking.

Therefore, the best way to keep histamine at a minimum is to ensure proper temperature control.

In some cases, low levels of histamine may already be present in the fish when you receive it.

To stop it increasing to levels of concern, always ensure the following:

- Purchase from reputable suppliers who store the fish on ice or under refrigeration;
- Receive product at refrigerated temperatures (< 5° C).
- Place the fish under refrigeration as soon as it is received.
- Keep the fish at refrigerated temperatures when not being used.
- If the fish is frozen, thaw the fish under refrigeration.
- When displaying fish for sale, always ensure there is enough ice on the product and refrigeration units are set at a temperature less than 5° C.

References:

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 - Toxicology and Wilderness, 2nd ed, 2012
3. www.foodauthority.nsw.gov.au
4. Office of the State Coroner, Queensland. File nos. 2014/122 & 2014/123.

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