STICKLER SYNDROME SUPPORT GROUP (SSSG)

Registered Charity: 1060421

STICKLER SYNDROME: WHAT IS IT? AND HOW CAN WE HELP?

AN INTRODUCTION TO THE CONDITION AND THE SUPPORT GROUP

(for patients, carers and families)

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OUR MISSION STATEMENT

- To raise awareness of Stickler syndrome amongst the medical profession and the general public.
- To promote the value of early diagnosis for adults and children with the condition.
- To emphasise that prompt treatment for retinal detachments and other eye problems associated with the condition can help preserve sight.

1. WHAT IS STICKLER SYNDROME?

It is a genetic progressive condition that can affect both sexes and is passed on, from either parent to child, affecting the body's collagen (connective tissue). It is caused by a mutation in certain genes. Collagen is the most plentiful protein in the body, being about one third of it, and forming a major part of supportive tissue of body organs. Some connective tissue acts like glue or binding, some like scaffolding, and some to allow for the elastic stretching and tightening in muscles. Collagen is also an important part of cartilage covering the bone ends of the joints. In the eye it is found in the sclera (the white of the eye), cornea and vitreous humour.

At least 4 genes which control and direct collagen synthesis (the building up of complex substances by the joining and interaction of simpler materials) are faulty and may cause Stickler syndrome. So far, four types of Stickler syndrome are known to the medical profession with further research taking place.

- Type 1. The gene COL2A1, which is on the long arm of chromosome 12 is responsible for Stickler syndrome in about 75% of people diagnosed with the condition. Most patients will have 'full' Stickler syndrome affecting the eyes, joints, hearing, and any mid-line clefting. Findings show that those with this anomaly have an increased incidence of cleft abnormalities.
- Type 2. The gene responsible is COL11A1 and is found on the short arm of chromosome 1. Again this causes 'full' Stickler syndrome, including joint, hearing, eye and any mid-line clefting. Patients with this anomaly have more incidence of deafness.
- COL112A causes a non-ocular Stickler-like syndrome, which affects only the joints and hearing with NO eye problems. This condition has now been given the name Oto-spondylo-megaepiphyseal dysplasia (OSMED).

- A fourth group of individuals, also known to have Stickler syndrome, do not have a fault on any of the known genes, This group also has 'full' Stickler syndrome affecting the eyes, joints, hearing and any mid-line clefting. Work is continuing to identify these unknown genes.

2. WHY STICKLER SYNDROME?

Stickler syndrome is named after Dr Gunnar Stickler. In 1960 a twelve year-old boy was examined at the Mayo Foundation in Minnesota, USA, and found to have bony enlargements of several joints and was extremely short-sighted. His mother was totally blind. Dr Stickler discovered that there were other members of the family, over five generations, with similar symptoms. The first family members having been seen by Dr Charles Mayo in 1887. This prompted Dr Stickler to study the family, and with colleagues worked to define the condition, the results being published in June 1965. Dr Stickler tentatively named the condition **Hereditary Progressive Arthro-ophthalmapathy,** now known world-wide as Stickler syndrome. Meanwhile at Addenbrookes Hospital, Cambridge, England Mr John Scott, was seeing various children with congenital myopia (short-sight) and repeated retinal detachments and reported on this in 1980, concluding that these symptoms were associated with a familial inherited condition, and were extremely difficult to treat.

3. WHO IS AFFECTED?

As an inherited autosomal (pertaining to chromosomes, but not the sex chromosomes) dominant condition, 1 in 10,000 people may be affected by Stickler syndrome. Some medical professionals believe that as many as 3 in 10,000 may be affected, but further research is needed to

confirm this. There is a 50% chance of children being affected in this way, although there are some recorded cases where it has occurred for the first time in a child, and this is called a spontaneous mutation. Once a child is affected then that child also has a 50% chance of passing the condition on to any offspring. If the child does not have the condition, then it **cannot** be passed on.
The condition is grossly under-diagnosed because a patient may be affected only in a certain area, and it is possible that other family members may be affected differently and even less or more severely. Families are often not aware they have the condition until a child is born with a palate abnormality, or experiences an unexplained retinal detachment, or shows signs of early degenerative joint changes.

4. WHAT ARE THE SYMPTOMS?

4.1. EYES

- Early on-set myopia. This is usually congenital and non-progressive.
- High risk of retinal detachments, which may occur in both eyes.
- Cataracts—which are usually wedge and comma shaped.
- Glaucoma.

4.2. ORO-FACIAL

- A full cleft palate, submucous or high-arched palate and/or bifid uvula. Cleft lip is not a symptom of Stickler syndrome.
- Micrognathia— the lower jaw is shorter than the other resulting in poor contact between the chewing surfaces of the upper and lower teeth. These symptoms are similar to those found in Pierre Robin Sequence (PRS) and it has been reported that around 30% of children

diagnosed with PRS are later re-diagnosed as having Stickler syndrome.
- Facial characteristics include a flat face with a small nose or no nasal bridge, Epicanthic fold, and large prominent eyes. However appearance does tend to improve, especially by the time the child starts school.

4.3. MUSCULOSKELETAL (JOINTS AND BONES)

- Hyper-mobile (over-flexible joints) and stiff joints.
- Early joint disease leading to osteoarthritis in later life.

4.4. AUDIOLOGICAL - HEARING

- Possible hearing loss—sensorineural and/or conductive.
- Glue ear in childhood caused by a cleft palate.

4.5. OTHER SYMPTOMS

- There may be curvature of the spine (scoliosis).
- Heart Mitral Valve Prolapse. The association with Stickler syndrome is still controversial as some medical experts believe it is no more prevalent than in the general population, but some publications still include it as a possibility.
- Many people within the support group, especially children, complain of chronic fatigue.

Stickler syndrome is believed to be the most common connective tissue disorder in Europe and the USA. It is more common than Marfan Syndrome, but Marfan is better known because it was identified earlier and is therefore usually used in medical schools as an example of a connective tissue disorder.

There is no cure for Stickler syndrome.

5. DIAGNOSIS

- Prenatal ultrasound screening MAY identify a cleft palate.
- Diagnosis is usually made by a combination of clinical examination and molecular genetic testing, and it is hoped to offer this testing as a service at Addenbrookes Hospital in Cambridge in 2006.

6. MANAGEMENT OF THE CONDITION

Once Stickler syndrome is diagnosed, a co-ordinated multi-disciplinary approach is desirable.

This should include:

- Ophthalmic assessment, with refraction and correction of myopia and/or astigmatic error. Many centres of excellence are now offering prophylactic (preventive) treatment to reduce the risk of retinal detachments, although there are two theories concerning the benefits and this must be discussed with the medical professional concerned.
- Due to the high risk of retinal detachment, ALL patients also require long term follow-up and are advised to seek ophthalmic help if they see new floaters, shadows, or changes in vision.
- If there is evidence of midline clefting, a maxillofacial assessment should be sought.
- Regular hearing tests and management of combined conductive and sensorineural deafness.
- Joint hyper-mobility should be assessed objectively using the Beighton scoring system to allow comparison with a matched population.
- Rheumatological assessment and follow up is advised in older patents who may benefit from physiotherapy or arthropathy.

- Children should be educationally assessed. Although intelligence is normal, patients of school age face considerable educational challenges because of the combined visual and auditory impairment.

7. WHY IS THE SUPPORT GROUP NEEDED

When a symptom appears, it is usually treated by a health professional from one particular discipline (e.g. ophthalmologist, cleft team member, rheumatologist, or an audiologist). Unless all these professionals are aware of the wide range of symptoms which are characteristic of Stickler syndrome a diagnosis may not be made. Even though Stickler syndrome is a genetic condition, some individuals may present with no clear family history of the condition, and once again a diagnosis can be missed. The Stickler Syndrome Support Group aims to raise awareness of all aspects of the condition, by informing its members of the implications of the condition and keeping them informed of any new developments. It is grossly under-diagnosed, yet it is a condition where early diagnosis is **vital.**

Individuals who have the condition can:

- If they experience any changes in vision, seek the help of a vitreoretinal surgeon with extensive experience in the management of Giant Tears and Retinal problems.
- Receive informed care and treatment for a wide range of medical problems.
- Prepare for the physical and emotional impact of having a genetic condition which is lifelong and cannot be cured.
- Seek genetic counselling and make reproductive choices based on sound knowledge.

8. HOW CAN WE MAKE A DIFFERENCE?

- By raising awareness of Stickler syndrome amongst medical professionals and the general public.
- By emphasising the value of early diagnosis for adults and children with the condition
- By stressing in our literature, and to professional and family contacts, that prompt treatment for retinal detachment and other eye problems associated with the condition can help to preserve vision.
- By producing clear and accurate information about Stickler syndrome in print and on our website.
- By alleviating feelings of isolation and distress in affected individuals and families, especially when they are undergoing medical procedures related to Stickler syndrome.
- By meeting regularly with medical advisors so that we are kept up to date with new developments concerning the condition.
- By organising Members Days, workshops and other events for affected families and for professionals who want to be informed about the condition.
- By issuing new members with a Tip Sheet about living with Stickler syndrome, and a credit card size 'sight card' for them to present at casualty if they experience changes in vision.

9. ABOUT THE SUPPORT GROUP

The Stickler Syndrome Support Group (SSSG) was founded in the UK by Wendy Hughes in 1989. In 1994 the first conference was held in Birmingham with more that 100 people attending from all corners of the UK, as well as from the Netherlands and Eire. Dr Stickler came from America, and accepted the Group's invitation to become Life President. In 1995, the only book on the condition,

Stickler The Elusive Syndrome, was published. In 1997 the group was granted charitable status, and Wendy Hughes was officially recognised as Founder and Honorary President. The 10th anniversary conference was held in Cambridge in 1999, and Dr Stickler attended. The David Pitcher Trust Fund for Young people was set up in 2002, whose aims are to: provide factual, but reassuring information to youngsters with the condition, also to provide opportunities for young people with Stickler syndrome to experience sporting and leisure activities, under supervision, that otherwise could not be available to them.

10. HOW YOU CAN REACH US

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