

Clinical Profile of 46 Non AMD CNVM and Management with Anti-Vegf

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Abstract

Aim: To know clinical profile of non AMD CNVM in context to (Type, location, FFA, OCT characteristics Demography, incidence, causes)

To know clinical response to Anti-VEGF, conventional or PRN

Result:- Type: -14(30.4%) Myopic cnvm, 11(23.9%) Idiopathic cnvm, 9(19.5%) PFT, 4(8.7%) Inflammatory, 3(6.5%), choroidal osteoma with cnvm, 2(4.3%) Angiod streak, 2(4.3%) CSR with cnvm, 1(2.2%) Traumatic cnvm.

Location: - Extrafoveal (2), juxta foveal (14), Sub foveal (27), Peripapillary (1) (Angiod streak), Unifocal (42), multifocal (3) (PFT)

FFA:- 39(84.7%) classic, 4(8.7%) Occult cnvm, 3(6.5%) were undifferentiated. **CT:-**21(45.6%) type-2 membrane, 9(19.5%) undifferentiated, 2(4.4%) type -1 membrane **Demography:-**Average age 49.6 yrs, range (20 – 64 yrs); Male preponderance, M:F ratio is 1.3:1, Almost all had unilateral presentation except PFT (parafoveal telangiectasias) and myopic CNVM which bilateral.

Interpretation: - 6 cases responded to single dose. 10 responded to second dose of anti VEGF and 21 responded to 3rd dose. 9 were not responders to 3 dosages, given option of PDT with anti-VEGF. 2 cases responded to PDT. 1 case responded to high dose steroids with anti-Koch's in inflammatory CNVM. 4 cases remain non responded to treatment. 31(67%) had improvement in vision, 8(18%) had stable vision, while 7(15%) had deteriorated.

Conclusion: - Myopic CNVM cases showed 100% response after 1 to 3 dosages of anti-VEGF. Non-AMD cnvm cases respond well to anti VEGF alone, few more respond to added PDT. Inflammatory CNVM require high dose steroid

Keywords:- Optical coherence tomography (OCT), Fundus Fluorescein Angiography (FFA).

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Introduction

Choroidal neovascularization (CNV) may arise in association with several conditions other than AMD¹. These include pathologic myopia, uveitis, central serous chorioretinopathy, angiod streaks, choroidal osteoma, hereditary chorioretinal diseases, and iatrogenic disorders². The initial stimulus leading to the development of CNV is complex and varies according

to the underlying disease aetiology³. The occurrence of CNV associated with non-AMD conditions often affects patients at a younger age; therefore, some patients may develop work limitations leading to considerable financial losses and emotional distress⁴. Regardless of the inciting stimulus involved in the development of CNV, it is now well established that VEGF plays a major role in its pathogenesis⁵.

Inclusion Criteria:

Patient of age 20 – 64 years were taken

Exclusion Criteria:

- CNVM > 55 yrs. with drusen other eye AMD related cnvm or dry AMD
- Any CNVM received previous treatment.
- Media opacities where FFA is inconclusive.
- Follow up minimum 6 months.
- Cases clinically diagnosed as PCV; RAP were excluded.

Material and Methods

A hospital based clinical trial was done with 46 eyes of 41 patients was done.

Source of Data:

This study was conducted on patients attending outpatient department of ophthalmology in a tertiary care centre. It was conducted from NOV 2017 to MARCH 2019. This study was approved from institutional ethics committee.

Sample size: 46 eyes from 41 patients.

Results

TABLE 1 :

This table shows types of non- AMD CNVM from our study of 46 eyes, the different types are and with their percentages- 14 cases are of Myopic cnvm that is 30.4% following which Idiopathic cnvm cases are 11 that is 23.9% then PFT cases are 09 that is 19.5% following which Inflammatory cases are 04 that is 8.7%, then Choroidal osteoma with cnvm are 03 that is 6.5%

and Angiod streak cases are 02 that is 4.3% and CSR with cnvm are also 02 that is 4.3% and the least are Traumatic cnvm cases are 01 that is 2.2% .

Table 2:

This table contains information regarding the location of different types of non-AMD CNVM seen above and its percentage that is most common location is Sub foveal which is seen in 27 cases out of 46 that is 58.69% followed by Juxta foveal which is seen in 14 cases that is 30.4% then Extrafoveal location which is seen in 2cases that is 4.3% and the most uncommon location is Peripapillary which is seen in single case of Angiod streak.

Non -AMD CNVM cases are mostly Unifocal – 42 that is 91.3% and Multifocal are only 3 seen in parafoveal telangiectasia.

Table 3:

This table gives information about the patterns on Fundus Fluorescein Angiography seen in cases of non -AMD CNVM and the 39 cases that is 84.7% had predominantly classic pattern followed by 04 that is 8.7% cases had Occult cnvm and only 03 cases that is 6.5% were undifferentiated on angiography.

Table 4:

This table gives information of the patterns seen in Optical coherence tomography (OCT) in non – AMD CNVM.

But we could retrieve OCT of only 32 eyes so cases are accordingly that is 21 cases out of 32 that is 45.6% showed type-2 membrane followed by 9 cases that is 19.5% were undifferentiated on OCT , and only 2 cases out of 32 that is 4.4% had type -1 membrane.

TABLE 5:

This table deals with the treatment modalities and the number of cases actually responded to the which treatment and its percentages so all patients were exclusively given anti-VEGF(either Lucentis or Avastin) 29 patients primarily received Avastin, 17 received Lucentis and the patients those who had not responded to anti VEGF were given option of PDT or combination out of which 6 cases responded to single dose of anti-

VEGF which predominantly include myopic CNVM cases but 10 more responded to second dose which include Myopic, Idiopathic and PFT related cnvm but then 21 cases responded to 3rd dose of anti VEGF than 9 cases were not responded to 3 dosages, those were given option of PDT with anti-VEGF and also two responded after 5 dosages of anti VEGF and two cases responded to PDT which include Osteoma and idiopathic CNVM moreover one case responded to high dose steroids with anti-Koch's in inflammatory CNVM but out of 46 ,four patients remain non responded to treatment.

Table 6:

This table gives the idea of the visual outcome after the different treatment modalities given and the results are 9 cases had three line (Snellen) visual improvement till last follow up and 7 cases had two line improvement but 15 cases had only one line improvement and 8 had stable vision, but symptomatically better but lastly7 had drop in vision. So, the actual result is 31 cases that is 67% had improvement in vision and 8 cases that is 18% had stable vision while 7 cases that is 15% had deteriorated.

Results

Table 1 – On The Basis Of Type Of Non- Amd Cnvm: -

TYPES OF NON-AMD CNVM	NUMBER OF CASES	PERCENTAGE
Myopic CNVM	14	30.4
Idiopathic CNVM	11	23.9
PFT	9	19.5
Inflammatory	4	8.7
Choroidal osteoma with CNVM	3	6.5
Angiod streak	2	4.3
CSR with CNVM	2	4.3
Traumatic CNVM	1	2.2

TABLE :2 ON THE BASIS OF LOCATION :-

Location	Numbers	Percentage
Subfoveal	27	58.69
Juxtafoveal	14	30.4
Extrafoveal	2	4.3
Peripapillary	1	2.2
Unifocal	42	91.3
Multifocal	3	6.5

TABLE 3: ON THE BASIS OF FFA -ANGIOGRAPHY :-

PATTERN ON ANGIOGRAPHY	NUMBER OF CASES	PERCENTAGE
CLASSIC CNVM	39	84.7
OCCULT CNVM	4	8.7
UNDIFFERENTIATED	3	6.5

TABLE :4 ON THE BASIS OF OCT FINDINGS: -**ONLY 32 EYE OCT COULD BE RETRIEVED**

Oct Finding	Number	Percentage
Type-2 membrane	21	45.6
Undifferentiated	9	19.5
Type -1 membrane	2	4.4

TABLE 5: ON THE BASIS OF TREATMENT: -

Treatment Modality	Number of Cases Benefitted	Percentage
ANTI VEGF 1 DOSE	6	13.04
ANTI VEGF 2 DOSES	10	21.7
ANTI VEGF 3 DOSES	21	45.6
ANTI VEGF 5 DOSES	2	4.3
PDT	2	4.3
HIGH DOSES OF STEROIDS	1	2.1
NON-RESPONDERS	4	8.6

TABLE 6: VISUAL OUTCOME: -

VISUAL OUTCOME	NUMBER	PERCENTAGE
Improvement	31	67
Stable vision	8	18
deteriorated	7	15

Discussion

This study is a hospital based clinical trial was done with 46 eyes of 41 patients conducted on patients attending outpatient department of ophthalmology in a tertiary care centre. It was conducted from NOV 2017 to MARCH 2019. This study was approved from

institutional ethics committee. This study is performed to find out the different types of non-AMD CNVM and their location with respect to their location and patterns seen on Fundus Fluorescein Angiography (FFA) and OCT images. This study was done with principal aim to know the clinical profile of non AMD CNVM in

context to (Type, location, FFA , OCT characteristics Demography, incidence and causes and to know the clinical response to Anti-VEGF or conventional or PRN.

In our study the patient of age 20 – 64 with average age of 49.6 years were taken. In our study the cases of CNVM > 55 yrs with drusen other eye AMD related cnvm or dry AMD were excluded and any CNVM received previous treatment was also excluded to get better result regarding treatment. Cases with media opacities where FFA is inconclusive and Cases clinically diagnosed as PCV, RAP were also excluded.

In our study both the sex were taken into consideration out of the result which came out is Male preponderance of M:F ratio is 1.3:1. This study also gives the result that almost all had unilateral presentation except PFT (parafoveal telangiectasia) and myopic CNVM which showed the bilateral presentation.

In our study the number of cases taken are 46 and out of which the different types are and with their percentages- 14 cases are of Myopic CNVM that is 30.4% following which Idiopathic CNVM cases are 11 that is 23.9% then PFT cases are 09 that is 19.5% following which Inflammatory cases are 04 that is 8.7%, then Choroidal osteoma with CNVM are 03 that is 6.5% and Angiod streak cases are 02 that is 4.3% and CSR with CNVM are also 02 that is 4.3% and the least are Traumatic CNVM cases are 01 that is 2.2% .

The main aim of the study was also to get information regarding the location of different types of non-AMD CNVM seen above and its percentage that is most common location is Sub foveal which is seen in 27 cases out of 46 that is 58.69% followed by Juxta foveal which is seen in 14 cases that is 30.4% then Extrafoveal location which is seen in 2 cases that is 4.3% and the most uncommon location is Peripapillary which is seen in single case of Angiod streak.

The study also gives result regarding the Non -AMD CNVM cases that are mostly Unifocal – 42 out of 46 that is 91.3% and Multifocal are only 3 that are seen in parafoveal telangiectasia cases specifically. In our study of 46 cases information about the patterns on Fundus Fluorescein Angiography seen in cases of non -AMD CNVM is also correlated which comes out to that 39 cases that is 84.7% had predominantly classic

pattern shown in FFA followed by 04 cases that is 8.7% had Occult cnvm and only 03 cases that is 6.5% were undifferentiated on angiography which gives important part in discussion as FFA can be considered as an important diagnostic tool.

In our study the principal is also to note the pattern of non-AMD CNVM on OCT and to get the result according to information of the patterns seen in Optical coherence tomography (OCT) in non – AMD CNVM .

But we could retrieve OCT of only 32 eyes so cases are accordingly that is 21 cases out of 32 that is 45.6% showed type-2 membrane followed by 9 cases that is 19.5% were undifferentiated on OCT , and only 2 cases out of 32 that is 4.4% had type -1 membrane which gives an important result that type-2 membrane on OCT is most commonly seen in non-AMD CNVM.

In our study the role of anti -VEGF is also noted along with some different modality of treatment and the number of cases actually responded to which treatment and its percentages so all patients were primarily exclusively given anti-VEGF (either Lucentis or Avastin) 29 patients primarily received Avastin, 17 received Lucentis and the patients those who had not responded to anti VEGF were given option of PDT or combination out of which 6 cases responded to single dose of anti-VEGF which predominantly include myopic CNVM cases but 10 more responded to second dose which include Myopic, Idiopathic and PFT related cnvm but then 21 cases responded to 3rd dose of anti VEGF .

From the above treatment option 9 cases were not responded to 3 dosages of anti -VEGF so were given option of PDT with anti-VEGF and also two responded after 5 dosages of anti VEGF and two cases responded to PDT which include Osteoma and idiopathic CNVM moreover one case responded to high dose steroids with anti Koch's in inflammatory CNVM

After all treatment modalities it was noted that out of 46, four patients remain non responder to treatment. One of the very important result which comes out in our study is those who are Non-responder out of four patients, one had angiod streak, two had CSR with cnvm, & one had parafoveal telangiectasia and the common factor among three non-responders is presence of large serous PED with mottled RPE alteration.

In our study the last result comes out from the visual outcome after the different treatment modalities given and the results are 9 cases had three line (Snellen) visual improvement till last follow up and 7 cases had two line improvement but 15 cases had only one line improvement and 8 had stable vision, but symptomatically better but lastly 7 had drop in vision. So the actual result is 31 cases that is 67% had improvement in vision and 8 cases that is 18% had stable vision while 7 cases that is 15% had deteriorated.

Thus the cases of non-AMD CNVM was studied well on the basis of type, location , demography and findings on the basis of FFA and OCT and the role of anti -VEGF and visual outcome so most of the cases benefitted from the 3rd dose of Avastin and only 4 were non responders.

Conclusion

PFT related telangiectesia is not uncommon in our area which has female preponderance, multifocal location and bilaterally as classical presentation and respond well to anti VEGF. Myopic CNVM cases showed 100% response after 1 to 3 dosages of anti-VEGF. 85% had predominantly classic CNVM, 65% had type -2 CNVM on OCT. Non AMD cnvm cases respond well to anti VEGF alone, few more respond to added PDT ,67% cases shows visual benefit .Inflammatory CNVM require high dose steroid and more investigations . Non responders have shown common factor of large PED with RPE stippling, all are Occult CNVM on FFA and such cases needs ICG, which may turn out to be RAP, PCV.

Ethical approval: All procedures performed on human participants were in agreement with ethical standards of the Institutional and/or National Ethics Committee.

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Conflict of Interest: None.

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